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PARTNERSHIP LIABILITY.

THE prosperity of a nation chiefly depends upon the proper distribution of its capital. It is a fundamental axiom in political economy, that the wealth of a country increases in direct proportion with a judicious employment of its resources. It necessarily follows that every facility should be afforded to merchants and traders to embark their accumulated savings in any scheme promising an adequate return—of course, such realization to be commensurate with the risk incurred. The policy of an enlightened government should be to hold out every inducement to the thrifty classes to invest the results of their industry and economy, encumbered with as little legal restriction as may be consistent with a probable immunity from fraud. “It is,” said that distinguished statesman, Edmund Burke, “one of the finest problems in legislation, what the State ought to take upon itself to direct by public wisdom, and what it ought to leave, with as little interference as possible, to individual exertion.” We cordially endorse this opinion.

We are strenuously opposed to the prevailing system of parliamentary “tinkering” in commercial matters, based upon insufficient intelligence. The present law of partnership, however, is such a perplexing anomaly, and so fraught with palpable injustice, that a stern necessity demands its modification. We are generally reluctant to advocate appeals to the House of Commons, unless the evil is of paramount importance. But there can be little doubt, in all reflective minds, that the application of unlimited liability in private partnership reflects discredit of no ordinary nature upon our juridical administration. It checks legitimate enterprise, and offers a serious barrier to genuine mercantile speculation. The efforts of the capitalist are crippled, and the needy inventor and struggling man of talent are too frequently consigned to penury and neglect from its inequitable operation. Important interests affecting society are at issue in this question, and we are anxious to urge upon our constituency the advisability of an energetic movement to demonstrate these glaring defects. In the course of this article we will endeavour to demonstrate the erroneous principles involved, and indicate from whence we may gather some lessons of experience to mitigate their mischievous consequences. As the law now stands, every partner in a commercial association, whether dormant or otherwise, is bound by the acts of his colleagues, even though he may not have been cognizant of the transaction. It renders every individual who, though not an ostensible partner, shares the profits of a trading concern, liable for the whole of its debts. Moreover, he may be sued on all contracts made by any member of the firm, or by any one acting on their behalf in the way of business, including all cheques, notes of hand, and bills of exchange signed in their name. He is also personally responsible for any civil injury committed through carelessness of their servants, provided at the time such accident occurs they are engaged in represent-

ing their interests. In the event of bankruptcy, each partner is pledged to his last shilling, although he may have only secretly lent his money, but not his credit, and the creditors were unacquainted with the existence of such a connexion, either directly or indirectly. The reasonable dread on the part of capitalists of risking all they have in the world, operates very prejudicially upon the industrial and middle classes. For instance, a tradesman of advanced years is anxious to retire; his business is lucrative, but the claims of a large family have diminished his other resources, and he is not in a position altogether to abandon it. Under the present system, he must either adopt the latter alternative, or hazard the whole extent of his property by entrusting the management to another, who may involve him in inextricable difficulties. If the principle of limited liability were recognised, he could leave a portion of his money in the concern, with some feeling of security, thus benefiting himself by obtaining a larger interest for the sum so invested, and perhaps helping a young man of skill and character, but lacking means, into a condition of independence. What possible objection can there be to such a course? The public could be protected by simply insisting upon the amount for which he is willing to be responsible being duly registered, and, as an additional security, it could be advertised once in the local papers. Take another case; an artisan of an ingenious turn of mind devises some improvement in machinery, calculated to be of great public utility in economizing labour. He is naturally anxious to enjoy the fruits of his ingenuity, but is prevented from protecting his discovery from the want of means. Even supposing he scrapes together enough to take this preliminary step of obtaining a patent, he is unable to get any one to help him to develop his invention. He applies to the capitalists, but without success. Prudent men are deterred from advancing the smallest sum, as he is a poor man, and cannot offer any security to the creditor. If there is any stipulation for a share in the ultimate profit, it becomes a partnership concern, and few will care to venture the whole of their wealth in it. But if a judicious alteration of the law would permit the capitalists to embark a limited sum, there is little doubt the assistance could be obtained, and thus all parties be benefited.

The expediency of the speedy introduction of the principle of limited liability into private partnerships has been recommended by several of the highest politico-economical authorities and jurists. Mr. Commissioner Fane has expressed his belief that "one-half of the misery arising from commercial transactions has arisen from the present law of partnership, and from its being practically against common sense." The proposed amendment has been furthermore tested in nearly every civilized country. The distinction between the active and dormant partner has been adopted in France, Spain, Portugal, Switzerland, Russia, Holland, Lombardy, Wurtemberg, Sardinia, and several of the United States of America. A short summary of the French code, as applicable to this subject, will perhaps better explain the simplicity of the suggested change. It recognises a mercantile association called the *Société en Commandite*, consisting of acting and dormant partners; but the latter are not liable for losses beyond the amount they have contributed, or undertaken to contribute, to the common fund. After all claims are duly discharged, the secret co-partners become creditors, and proceed against the residue of the assets. It necessitates a strict neutrality as regards the actual management of affairs on the part of the dormant associates, and by any interference openly the liability becomes *unlimited*. The French law also demands that all agreements shall be in writing, and that a certificate containing all the material details of the deed shall be placarded in the public courts of the district, and inserted once annually in the local journals. This document must also include the names, addresses, and style of the firm. With the secret partners the amount to be furnished respectively is registered, and open to inspection. Thus the trading public can readily form an opinion as to the extent of credit to be granted.

When parliament again assembles, we shall probably revert to this question, as Mr. Scholefield brought forward a Bill last Session, which we trust will not be shelved, and which is calculated to rectify the most important of the defects.

UNITATE FORTIS.

In another part of the journal our readers will find a report of the meeting of the trade at Liverpool, to promote the objects of the "United Society."

It is gratifying to observe the steady progress that is made, and especially the accession of 100 members at Liverpool, where some amount of party feeling had previously existed.

It appears that the object of Mr. Buott, sen., in his visit to the provinces, is not only to obtain new members, but also to forward the appointment of local secretaries to look after the trade requirements of each locality, and to arrange for an annual social and public meeting in each town on behalf of the Benevolent Fund.

This is the right way of working, and the "United Society" have wisely determined to widen the sphere of their operations. Had the Committee restricted their efforts to London, their proceedings would have been of a very sectional character, and feeble in their influence upon general trade interests.

In undertaking to canvass the entire trade in the United Kingdom, the Committee have no doubt taken upon themselves a heavy responsibility, the more so from the extreme smallness of the annual membership fee; but we believe their exertions in this respect will bring them their reward in the creation, ultimately, of one of the largest trade organizations that have been formed—one that Chemists and Druggists will be proud of, not only for its numerical strength, but also for the liberal policy of the Committee. We have had no reason as yet to censure or criticise their proceedings; if we have had any doubt, it has arisen from the knowledge of the smallness of their resources, which must necessarily cripple the usefulness of the Society. It will be remembered that the Committee had no fund to start with, even to guarantee that item of "preliminary expenses" that forms so large a portion of the anxiety of the promoters of all new societies.

This, however, is a matter that will improve. First difficulties are generally the greatest, and these seem surmounted. Every year will consolidate and improve the resources of the Society. It will, to secure this, be necessary for the members to show a fidelity to the cause, and to exercise a forbearance in not expecting too much from the committee of an institution that has in the first place to fight for its existence. Good progress has been made, "strength has been found in unity." Already we have reason to know that the Society has established a central record for trade requirements that has been of practical advantage to many of the members, and that in the first year of its official existence it has collected more than three times the amount received by the Pharmaceutical Society during the same period. Great satisfaction has also been evinced by the trade at the determination of the Committee to continue their efforts to obtain the "Jury exemption clause."

In a former number we stated that the exclusive possession of their privilege by the members of the Pharmaceutical Society would excite much dissatisfaction in the trade, and we now find this verified by the resolution unanimously adopted at Liverpool, which strongly condemns the partial legislation. We apprehend this will be found the key-note for other towns, where a sense of the injustice is deeply felt, and that remonstrance and determined action for redress will become general throughout the trade. The assumption of the *Pharmaceutical Journal*, that the exemption being confined to the Pharmaceutical Society will induce many to join it, is a most erroneous conclusion. So far from that being the case, many of the members, feeling that the

sting which accompanies it deprives it of all grace, care little for a privilege so unjustly withheld from their equally deserving brethren; and the trade universally condemns the spirit of selfishness in which the limitation is conceived. That limitation is a false assumption before the world of superior qualification for the favoured few, and a slur upon the intelligence of the trade.

We have been requested by the Secretary of the United Society to publish the following list of

DISTRICT AND TOWN APPOINTMENTS.

Portsmouth District:—J. Woolven, Esq., Chairman; Charles Mooreshead, District Secretary.

Southampton:—George Manby, Local Secretary.

Salisbury:—H. W. Tabor, Local Secretary.

Bath:—R. O. Harding, Local Secretary.

Bristol District:—William Herapath, sen., Esq., F.C.S., Chairman; Walter Mitchell, District Secretary.

Gloucester:—J. Medd, Local Secretary.

Birmingham District:—Chairman; Morris Banks, jun., District Secretary.

Dudley:—George Bagott, Local Secretary.

Wolverhampton:—R. Owen, Local Secretary.

Wednesbury:—Horatio H. N. Tucker, Local Secretary.

Walsall:—T. H. Hazledine, Local Secretary.

Stafford:—J. Averill, Local Secretary.

Potteries:—William Wilson, Hanley, Local Secretary.

Cheltenham:—Edwin Cuff, Local Secretary.

Chester:—T. R. Hincks, Local Secretary.

Liverpool:—Chairman; J. M. Buck, District Secretary.

Birkenhead:—William Wallworth, Local Secretary.

Gentlemen have also been appointed for Rochester, Chatham, Gravesend, Margate, Ramsgate, Brighton, and other places.

We are promised a more complete list at the end of the year.

ASCLEPIAS TUBEROSA.

SYNOMYS.—Butterfly Weed, Canada-root, Flax-root, Orange Swallow-wort, Pleurisy-root, Silk Weed, White-root, Wind-root, &c.

This plant is indigenous to nearly all the States of North America, but occurs most abundantly in the South. It enjoys a high reputation as a remedial agent, and is considered to be particularly efficacious in cases of pleurisy, from which circumstance it has received one of its popular names.

The genus *Asclepias* was dedicated to *Aesculapius* under his Grecian name. *Asclepias*, and some of the species, have been employed in medicine from a very remote period.

BOTANY.—The root is perennial, large, and fleshy, has a white colour, and is the only part of the plant employed for medicinal purposes. The stalks are erect and hairy, with spreading branches, and generally grow to the height of about three feet. The leaves are oblong, lanceolate, sessile, and alternate. The flowers, which are bright orange-coloured, are arranged in terminal corymbose umbels. It belongs to the natural order *Asclepiadaceæ*, the *Asclepias*, or Milk-weed order; and is, perhaps, the only species that does not yield a milky juice when wounded.

CHEMISTRY.—When fresh, the root has an unpleasant sub-acrid flavour; but when dried, it becomes brittle, and is easily reduced to powder, and possesses a bitter but not nauseous taste; it imparts its properties to boiling water. No accurate analysis appears to have been yet made of its constituents, but an active resinoid principle, to which the name *Asclepidin* has been given, has been obtained from it; and to this the active properties of the plant are considered to be mainly due. Some have thought that it contains an alkaloid; no such principle, however, appears to have been yet isolated.

MEDICINAL PROPERTIES.—Pleurisy-root is carminative, diaphoretic, diuretic, and tonic,

and has been used with success in acute rheumatism, catarrh, dysentery, febrile diseases, pleurisy, and pneumonia, and found efficient in flatulence and indigestion. Administered warm, in the form of infusion, it promotes diaphoresis, without increasing the temperature of the body. Asclepidin is stated to have been used successfully in the treatment of affections of the mucous membranes, fevers of every type, inflammatory diseases, whooping-cough, and chronic diseases of the digestive organs.

Professor Barton considered Pleurisy-root to be one of the most important of the American indigenous remedies. Dr. Bigelow* remarks, "I am satisfied of its utility as an expectorant medicine, and have seen no inconsiderable benefit arise from its use as a palliative in phthisis pulmonalis." Dr. Burgo† states that "it is a common practice in many parts of the South to give small and repeated doses of the root, combined with cinnamon, and also the decoction, in cholera infantum, with highly beneficial effects."

Professor Chapman‡ remarks, "My experience with this medicine is sufficient to enable me to speak with some degree of confidence in its powers. As a diaphoretic, I think it is distinguished by great certainty and permanency of operation, and has this estimable property, that it produces its effects without increasing much the force of the circulation, raising the temperature of the surface, or creating inquietude and restlessness. On these accounts, it is well suited to excite perspiration in the forming state of most of the inflammatory diseases of winter; and is not less useful, in the same cases, at a more advanced period, after the reduction of the action by bleeding, &c. The common notion of its having a peculiar efficacy in pleurisy, I am inclined to believe is not altogether without foundation. Certain it is, that it very much relieves the oppression of the chest in recent catarrh, and promotes expectoration in protracted pneumonia." Dr. Eberle§ says, "While practising in Lancaster, I frequently employed this remedy in catarrhal affections, and generally with manifest advantage. I have also witnessed its good effects in pneumonia and phthisis pulmonalis; and in one case of acute rheumatism I prescribed it with much apparent benefit." Dr. Griffith|| considers that, "from all that can be gathered on the subject, it may be deemed one of the most useful of our native articles, and deserves a full and unbiased trial."

Dr. Lee¶ describes it as "an efficient alterative tonic, acting with great certainty upon the skin, if warm drinks are used, and the patient confined to the bed; it is also diuretic, expectorant, carminative, and, in larger doses, cathartic and emetic. It is believed to be particularly efficacious, as an alterative, in affections of serous membranes. It is employed extensively in the South in catarrh, pneumonia, pleurisy, phthisis, and other pectoral complaints; and generally in rheumatism and dysentery. It is also a valuable diaphoretic tonic in intermittents and remittents. It is a useful remedy in a tonic dyspepsia, restoring tone to the stomach, and relieving gastric pains and flatulence. Its tonic influence is mild compared with many of our native bitters, but, like rhubarb, possessing laxative properties also. It is well adapted to a class of cases in which most other uncombined tonics would be inadmissible. We have prescribed it in catarrh, bronchitis, and other pulmonary complaints, where it is necessary to determine to the skin, and at the same time promote free expectoration, and with favourable effect. It will often restore expectoration when suppressed, without exciting or heating the system. A tea-cupful of a strong infusion may be given every two or three hours. Its efficacy as an expectorant is much promoted by adding one drachm of sal ammoniac to a pint of the decoction. As it is free from any disagreeable taste or smell, it may be readily given to children, for many of whose diseases it is well adapted, as cholera infantum, marasmus, whooping-cough, fever, &c. "It is, however, as a mild, alterative tonic, with laxative properties, that we should chiefly recommend this remedy; and in smaller doses than generally employed. In chronic rheumatism and syphilis, a wine-glassful of a strong decoction should be given three times a-day, with five grains of iodide of potassium." Dr. Parker, of Mass., employed it for twenty-five years in dysentery, and had the greatest confidence in its powers.

* Am. Med. Bot., vol. ii. p. 65.

† Ther., vol. ii. p. 350.

‡ Med. Bot., p. 455.

† Am. Med. Rec., vol. iii. p. 335.

§ Mat. Med., vol. ii. p. 220.

|| Tilden's Journ. Mat. Med., vol. iii. 309.

Dr. Polk,* of Frederica, Del., has a very high opinion of it as a remedial agent, and "considers that it merits a much higher place in the *Materia Medica* than has ever been given to it;" and that "its diaphoretic powers are equalled but by few of that class of agents which promote the action of the skin, and induce perspiration; it is also endowed with unexcelled alterative influence upon serous membranes, doubtless subduing pleuritis, which, if treated by other means, would have terminated fatally." Dr. Polk states that "he had treated about sixty cases of pleuritis without the loss of a single patient, and had also used it, in conjunction with aconite, in peritonitis, and found these agents, combined with morphia, sufficiently potent to control this very severe disease in a few days. He considers the Fluid Extract, prepared by Tilden and Co., as the best form for administration, and prefers both it and the Solid Extract to the principle Asclepidin." The latter is convenient for administration in the form of pill.

PREPARATIONS AND DOSES.—Messrs. Tilden and Co. give the following in their book of Formulae:—Fluid Extract, 3ss. to 5ij.; Asclepidin, gr. j. to grs. v.; Tincture, 3ij. to 3v.; Syrup, 5ij. to 3j.; Compound Syrup, 3ij. to 3v.

CHEMISTRY AND PHARMACY AT THE INTERNATIONAL EXHIBITION.

By C. W. QUIN, F.C.S.,

SUPERINTENDENT OF CLASS II. (CHEMICAL AND PHARMACEUTICAL PRODUCTS).

The trophy of Class II. is one of the most conspicuous objects in the Eastern Annex, and is, perhaps, the only trophy properly so called in the building. A trophy should not be a mere glass-case destined as a splendid show-box for the especial behoof of a few, or, as we find in several instances, for the benefit of single individuals; but should, as much as possible, both in its construction and in its details, show forth and symbolize the products of the class it represents. These requirements are fulfilled by the trophy of Class II., which is a construction built as it were of the products exhibited. The mass of alum forming the base was contributed by Mr. Croll, of the Metropolitan Alum Works, and is a worthy representation of the scale upon which his business is carried on. Above is a snake of borax, crystallized with great ingenuity by Messrs. Howards and Sons, of Stratford. Its eyes and forked tongue are small masses of bichromate of potash. Above all, and surmounting the snake, is a very beautiful blue cross of sulphate of copper, made by Messrs. Houlder, of Norwood; and below, scattered about, are large crystals of green copperas, yellow prussiate, bichromate of potash, sulphate of copper, and a very fine crystallization of acetate of lead, by Messrs. Wright, Francis and Co. The other crystals are contributed by Messrs. Burgess, of St. Helen's; Messrs. Wilson, of Glasgow, and others. Great credit is due to these gentlemen, who came forward at the very last moment to aid the indefatigable Chairman of the Class, Mr. S. Howard, by sending in crystals made according to his design. This gentleman had the whole management and designing of the trophy from beginning to end, and great praise and gratitude are due to him for his praiseworthy effort to make a picturesque mass out of such unpromising material, an effort in which he has succeeded beyond all expectation. At the desire of numerous exhibitors, a chromo-lithograph of the trophy has been executed in a very artistic manner, and may be had from Mr. S. Howard, at a nominal price. On the left-hand side is the case of Mr. Crookes, deservedly occupying the place of honour, containing specimens of the different salts of thallium, the metal lately discovered by this gentleman. Immediately behind is the handsome case of Messrs. Hutchinson and Earl of Warrington, devoted to the display of many fine specimens of alkali made by them. In the lower part of the case we find a magnificent mass of crystallized carbonate of soda; and immediately adjoining it is another mass which has undergone the process of carbonating, converting it into bicarbonate of soda. Above are ranged a long series of products illustrating the alkali manufacture, commencing with pyrites and coal, and

* Tilden's Journ. Mat. Med., vol. ii p. 40

ending with pure caustic soda. As the alkali manufacture is one of the most important in this country, a brief description of it may not be out of place. Formerly, soda was made from kelp and barilla; but, owing to the introduction of the process of Leblanc, it has been made from common salt for the last fifty or sixty years. Common salt, chloride of sodium, is decomposed by sulphuric acid, or by iron pyrites into hydrochloric acid and soda, the latter uniting with the sulphuric acid to form sulphate of soda, or *salt cake*, as it is technically termed. The salt cake is mixed with powdered coal and chalk, and thrown into a reverberatory furnace in large quantities, being frequently stirred until the whole is melted. When cold the mass consists of carbonate of soda, coal, and oxysulphide of lime, and from its appearance it is called *black ash*. The soda is extracted from it by lixiviation in warm water, in vessels with false bottoms, and the clear decanted liquor is set aside to cool and crystallize. The monocarbonate of soda resulting, which is the common washing soda of the laundry, is converted into the bicarbonate of the druggist by allowing it to remain in a current of carbonic acid for a certain time. The ordinary commercial article is very pure, as may be guessed by the fine and perfect crystals exhibited by various manufacturers. The process for converting carbonate of soda into caustic soda is a simple one, consisting only in boiling a strong solution with lime, which abstracts the carbonic acid and becomes converted into chalk, the supernatant liquor being drawn off and concentrated by evaporation. It is a singular fact, that since the invention of this process by Leblanc, in 1797, the only alteration of any importance is that of Mr. Longman, for converting salt into sulphate of soda by the use of iron pyrites instead of sulphuric acid. Messrs. Hutchinson and Earl avail themselves of this patent, having lately purchased almost inexhaustible pyrites mines in Spain. Passing along to Messrs. Hurst, Brook, and Tomlinson's case, on our right, we find it contains a most extensive collection of different chemical products, all of excellent quality, as far as they can be judged of through the glass. They exhibit varnishes, flavours artificial and real, pharmaceutical extracts, acetic acid, ammonia, and various dye liquors. Next to these, Messrs. Chance Brothers, of Birmingham, exhibit fine specimens of soda crystals and caustic soda, besides excellent samples of sal ammoniac, sulphate of iron, and other chemicals, which fully sustain their ancient fame. At the corner is a fine, though small, mass of alum crystals, sent by Messrs. Bray and Thomson, and at the other corner Messrs. Allhusen, of Newcastle, show some fine samples of alkali. Immediately adjoining them is the display of Messrs. Albright and Wilson, consisting of substances used in the match manufacture. The most important of these is the amorphous phosphorus of Professor Schroetter, of Vienna, for the manufacture of which they are the sole licensees in England. It is made by melting ordinary phosphorus in an atmosphere devoid of oxygen or moisture, and regulating the heat carefully between 450° and 460° for thirty or forty hours, when the whole will become converted into amorphous phosphorus. Amorphous phosphorus is much harder than the ordinary kind; it emits no odour, does not ignite by friction, and is insoluble in bisulphide of carbon, ether, and naphtha. If heated to 600° it becomes converted into the ordinary kind, bursting into flame during the process. By rubbing it against any material containing chlorate of potash, it immediately inflames, although any amount of friction against an ordinary surface fails to ignite it. This, then, is the principle upon which the safety matches of Messrs. Bryant and May are made. Messrs. Albright and Co. also show chlorate of potash in splendid crystals, besides masses of imitation ordinary phosphorus, made of opal glass, with such a close resemblance to the real thing, that one gentleman applied to the police to have them removed from the building, as endangering its safety! At the left-hand corner of the next block are several fine specimens of sodium, aluminium, and alumina salts, sent by I. L. Bell, of Newcastle-on-Tyne. One of the specimens of sodium is remarkable as showing the crystalline form of that metal in great perfection. The aluminate of soda also deserves especial mention, as it is a new salt just coming into extensive use amongst calico printers. Mr. Bell also shows magnesia of great whiteness, prepared by Pattimore's process. Next to this is the case of Messrs. Gaskell and Deacon, who exhibit some splendid specimens of soda crystals, many of them being nearly perfect rhombs many inches in length. At the right-hand corner of the case is a great curiosity, in the shape of a mass of crystallized

hydrate of soda, the forms of many of the crystals being quite distinct. On the other side are some crystals of borax made from Hayesine, or borate of lime, from Paris. Above are numerous samples of soda salts, and a brilliant specimen of vermillion. Some green and blue ultramarine show that we can make these splendid pigments as well as our German and French neighbours, although we can buy them cheaper from them than we can manufacture them. At the corner, Ward and Co., of Glasgow, show kelp and iodine products. Next to them, Buckley's trustees exhibit a splendid crystallization of sulphate of iron in the form of a crown. Adjoining it is the Jarrow Company's case, representing another of our great alkali works; and, as a solitary instance of chemical products from the Emerald Isle, we have some capital specimens of rough acids, chloride of lime, and sulphate of soda, from Mr. Kane, of Dublin. At the corner, Mr. Young shows some good samples of iron paint. At the corner of the next block is Messrs. Bailey's case, containing a variety of fine specimens, amongst which we may specially notice some crystals of permanganate of potash, some chloride and bisulphide of carbon, and a sample of Professor Bigelow's keroselene, the new anaesthetic. The iodides and bromides are also very good. Messrs. Duncan and Flockhart, of Edinburgh, show chloroform, prepared both from ordinary and methylated spirit; and above, in a tasty little case, Mr. F. O. Ward exhibits specimens of the most important processes. The first is a method of separating woollen and cotton fibres from waste mixed rags. The general method of doing this is to destroy the cotton with some chemical substance, which leaves the wool intact; but Mr. Ward submits the rags to the action of super-heated steam, and leaves the cotton untouched, while he transforms the wool into friable ultmate of ammonia, one of the most valuable manures we have. In his other process, Mr. Ward does for potash what Leblanc did for soda. In other words, he solves by it the great problem of obtaining potash from minerals instead of vegetables. The mineral containing potash, orthite for instance, is finely ground, and mixed with a certain proportion of fluor spar. With this is incorporated a certain quantity of chalk, and the whole is made into balls or cakes, which are burnt for an hour at a cherry-red heat. They are then broken up and lixiviated, the potash dissolving out readily. The liquor is then concentrated and evaporated. If this process can be carried out on a large scale as well, and as economically as it has been with a few hundred-weight at a time, Mr. Ward will earn as much fame as his predecessor, Leblanc; and we trust, in addition, that a little more gratitude will be bestowed on him than upon that unfortunate individual, who enriched thousands of others, and died in a workhouse. Haas exhibits some fine samples of indigo, and the Bluyden Chemical Company's manure is looked on with great interest by the agricultural visitors; we, however, must pass on to Wilkinson and Heywood's case, which is a splendid mass of colour. The greens exhibited are particularly brilliant, but amongst such a blaze of blues, crimsons, and scarlets, it is almost impossible to say which is the brightest. Wilson and Fletcher show some dazzling samples of aniline pigments, which quite put out the quieter glories of the lichen colours in the case of Messrs. Wood and Bedford. We are glad, however, to see that the lovely orchil and cudbear violets and purples are able to hold up their heads very manfully against their flaunting rivals, mauve and magenta.

THE NATURAL ORDERS OF PLANTS.

EUPHORBIACEÆ.—THE SPURGEWORT ORDER.

Few families in the vegetable kingdom so abound in venomous plants as does this. The poisonous principle, which is volatile, and of an acrid nature, appears to reside in the milky juice, and to be more or less active in proportion to the greater or less abundance of that secretion. The order is composed of trees, shrubs, and herbaceous plants, generally abounding in a milky juice, and usually more or less acrid. They are more or less distributed over the globe, but are especially abundant in warm regions, particularly in equinoctial America, where, according to Lindley, "about three-eighths of the whole

number have been found; sometimes in the form of large trees, frequently of bushes, still more usually of diminutive weeds, and occasionally of deformed, leafless, succulent plants, resembling Indian figs in aspect, but differing from them in every other particular. In the Western World, they gradually diminish as they recede from the Equator, so that not above fifty species are known in North America, of which a very small number reaches as far as Canada. In the Old World, the known tropical proportion is much smaller, arising, probably, from the species of India and equinoctial Africa not having been described with the same care as those of America, not above an eighth having been found in tropical Africa, including the islands; one-sixth, perhaps, is about the proportion in India. A good many species inhabit the Cape, where, and in the north of Africa, they often assume a succulent habit; and there are almost 120 species from Europe, including the basin of the Mediterranean, of which sixteen only are found in Great Britain, and seven in Sweden."* The order contains about 216 genera, and 2,500 species, and belongs to the class Exogens, sub-class Monochlamydeæ. Some difference of opinion exists amongst botanists in reference to the structure of the flower in this intricate order: Jussieu and others considering it to be an apetalous order, with a tendency to form a corolla, whilst Lindley and others look upon it as a polypetalous order, losing its petals in a part of the species. The latter view appears to be the more feasible one, for although the European plants are usually destitute of any corolla, some of the tropical species, it is said, as *Aleurites*, *Eleococca*, &c., have petals as highly developed as a malvaceous plant.

BOTANY.—The leaves are simple, or rarely compound, opposite or alternate, and with or without stipules (little leafy appendages at their base). The flowers are unisexual (have but one sexual organ in each flower, either male or female), monœcious (having male and female organs in different flowers upon the same plant), or diœcious (having male flowers upon one plant, and female upon another one), axillary or terminal, sometimes enclosed in a calyx-like involucre, achlamydeous (having neither calyx nor corolla), or with a lobed inferior calyx, having on its inside glandular or scaly appendages, or even evident petals, which are either distinct or united. The male flowers consist of one or more stamens (male organs), which are either distinct or united. The anthers (the cellular cases containing the pollen) are two-celled. The female flowers have a superior ovary (that part of the pistil or female organ which contains the ovules), which is either elevated upon a stalk or sessile (without a stalk) upon the thalamus (the receptacle on which the carpels are placed), one, two, three, or many celled. The styles (the part which connects the stigma and the ovary) are either absent, or corresponding in number to the cells of the ovary, entire or divided. The stigmas (that part which receives the pollen) are equal in number to the cells of the ovary, or, when the styles are divided, corresponding in number to their divisions. The ovules (rudimentary seeds), one or two in each cell, suspended from the inner angles of the cell. The fruit is either dry, and its parts then separating from each other and from the axis, and usually opening with elasticity, or succulent and indehiscent (not splitting or opening when ripe). Seeds, one or two in each cell, suspended, often with an aril or carunculate. Embryo enclosed in fleshy albumen; cotyledons, flat; radicle, superior.

DIAGNOSIS.—Professor Bentley thus describes them:—"Herbs, shrubs, or trees, commonly with an acrid, milky juice. Flowers unisexual, monœcious, or diœcious. Calyx absent or present, and then inferior. Male flowers with one or more stamens, and two-celled anthers. Female flowers with a superior ovary, one or more celled, with one or two suspended ovules in each cell. Fruit of one, two, three, or many dry carpels, which separate from the axis and from each other, and open with elasticity; or fleshy and indehiscent. Seeds suspended. Embryo in fleshy albumen, with a superior radicle."

DISTINCTION FROM OTHER ORDERS.—Some of the plants of this order resemble those of the order *Cactaceæ*—the Cactus, or Indian Fig order; but they may be distinguished by their acrid, milky juice, the *Cactaceæ*, with one or two exceptions, being mucilaginous.

GENERAL PROPERTIES.—As before stated, many are extremely poisonous, the poisonous principle being contained in the milky juice when present, and pervading all parts of the

* *Vegetable Kingdom*, p. 276.

plant, more or less. It is of an acrid, or acro-narcotic nature, and volatile. Many have been employed medicinally as rubefacients, suppurants, emetics, diuretics, and cathartics. Some, as *Cascarilla*, are tonic, aromatic, and stimulant, and are perfectly devoid of any acrid or poisonous principle. Others, as *Manihot*, yield starch, which is largely employed for food; caoutchouc and resin are obtained from the milky juice of others. The seeds of many yield oils, either of a bland or irritating nature. A few of the fruits, as species of *Cicca*, &c., are said to be eatable, likewise some of the roots. Timber is yielded by some, as the Box, and others yield dyes. The hairs of some are stinging.

PRINCIPAL PLANTS AND USES.

ACALYPHA.—The root of the species *Cupameni*, an Indian herb, when bruised in hot water, is said to be cathartic, and its leaves are stated to possess laxative properties.

ALEURITES.—The species *Laccifera* furnishes gum lac in Ceylon. A gummy substance is yielded by the species *Triloba*, or Candle-nut tree, a native of Molucca, which is said to be chewed by the natives of Tahiti. The nuts of this tree are held in great repute, and are reported to be aphrodisiac. An oil is obtained from them called Kukui or Kekune, which is largely used in some parts of the world, and is now imported into London; it is used as an artist's oil. It has been recommended as a purgative, and is said to resemble castor-oil in its action. The fresh bark steeped in water yields to it a narcotic property which is sufficient to stupefy fish.

ANDA.—The seeds of the species *Braziliensis* yield by expression a fixed oil, and both oil and seeds are active cathartics.

BUXUS.—The species *Balearica*, or Turkey Box, yields a valuable timber. The leaves of the species *Sempervirens*, or Common Box, are stated to be sudorific and very purgative, and to have been employed as a remedy against syphilis. Notwithstanding their cathartic property, they are stated to have been employed as a substitute for hops. The bark is said to possess similar properties to those of guicum, and to have been substituted for it. It yields excellent timber, remarkable for its hardness and compactness; it is much used by wood engravers. It is said to prove fatal to camels, and that these animals cannot be employed in some parts of Persia where Box-trees abound, in consequence of the impracticability of preventing their browsing on the leaves.

CATURUS.—The flowers of the species *Spiciflorus* are spoken of as a specific in diarrhoea, taken in the form of decoction or conserve.

CICCA.—The root of the species *Disticha*, an Indian bush, is violently purgative. A decoction of the leaves is said to be diaphoretic, and to have been employed as a remedy against syphilis. Its seeds are cathartic. The succulent fruits of this and of the species *Racemosa* are said to be sub-acid, cooling, and wholesome.

CLUYTIA.—According to Roxburgh, the capsules of the species *Collina* are poisonous.

COMMIA.—The sap of the species *Cochinchinensis*, which is white, tenacious, emetic, purgative, and deobstruent, is said to prove a good medicine in obstinate dropsy and obstructions, when cautiously administered.

CONCEVEIBA.—The seeds of the species *Guanensis* are said to be delicious.

CROTON.—A kind of frankincense is said to be extracted from the species *Adipatus* and *Thurifera*, on the banks of the Amazons. The balsamic juice of the species *Balsamifer* is employed at Martinique in the preparation of the liqueur called Eau de Mantes. The purgative root of the species *Campestris*, called Velame do Campo, and a decoction of the species *Perdicipes*, called Pe de Perdis, Alcamphora, and Coccallera, in different provinces of Brazil, have been much esteemed as a cure for syphilis, and as useful diuretics. The species *Cascarilla* and *Eleuteria*, natives of Jamaica and the Bahama Islands, yield the aromatic tonic bark, commonly known as *Cascarilla* or *Eleutheria* Bark, and that yielded by the species *Casuarinoides*, *Micans*, *Nitens*, and *Suberosus* appear to be but very little inferior to it. The fragrant species *Gratissimus* is used by the Koras at the Cape of Good Hope as a perfume. The species *Humilis* is employed, on account of its aromatic qualities, for medicating baths in the West Indies. The aromatic bark known as Malambo Bark is the produce of the species *Malambo*. It is a favourite medicine in Columbia in diarrhoea, and as a vermifuge, and is used externally in the form of an alcoholic tincture in rheuma-

tism. It is said to be employed for adulterating ground spices in the States of North America. The leaves and bark of the species *Origanifolius* are reputed diaphoretic and antispasmodic, whilst its balsam is mentioned as a substitute for copaiva. The species *Pseudochina* yields the quilled Copalche Bark of Pereira, the Cascarilla of Mexico, where it is called Quina blanca and Copalche Bark, and the species *Suberosus* is probably the source of the Corky Copalche Bark of the same author. The seeds of the species *Tiglum*, and also those of the species *Pavana*, constitute the Croton or *Tiglum* seeds of the *Materia Medica*. An oil is obtained from them by expression, which is well known as a powerful drastic cathartic, in doses of from one to three minims. It is employed externally as a counter-irritant and rubefacient. The seeds are said to be employed in India as purgative pills, under the name of Jamalgata pills. The wood of the species *Tiglum* is said to be sudorific, and to be used as a remedy against syphilis.

CROZOPHORA.—The well-known purple dye, called Turnsole, is the inspissated acrid juice of the species *Tinctoria*, a native of the south of France. The juice is green when first expressed, but changes to a purplish hue under the combined action of ammonia and the air. The seeds are cathartic.

CUDOSCOLUS.—The root of the species *Herbaceus* is used in the same way as Mandioc in Mexico and Carolina. The species *Quinquelobus* (*Jatropha Urens*, L.) is covered with hairs, which sting severely, and the juice of its branches and seeds is diuretic.

ELÆOCOCCA.—The species *Vernicia* from China, and *Verrucosa* from Japan, both yield an oil by subjecting their seeds to pressure—the former for painter's work, and the latter for burning; both are too acrid to be employed as food.

EMBLICA.—The acrid fruit of the species *Officinalis* is used as a pickle in India. When ripe and dry, it is astringent, and is employed under the name of Myrobalani Emblici, against diarrhoea, dysentery, and cholera.

EUPHORBIA.—The acrid resin commonly known as gum Euphorbium is the produce of certain undetermined species, some of the principal of which are *Antiquorum*, *Canariensis*, *Officinarum*, and perhaps *Tetragona*. It is a dangerous emetic, cathartic, and rubefacient; and produces severe inflammation of the nostrils, if those who powder it do not guard themselves from its dust. It is produced from the wounded stems, and collected in leather bags. In India it is said to be mixed with the oil expressed from the seeds of the *Sessamum Orientale*, and employed externally in rheumatic affections, and internally in cases of obstinate constipation. The Arabs are stated to make up violent diuretic pills by rubbing over the juice of the species *Antiquorum* with flour; their camels, however, are said to eat the branches of the plant when cooked. The juice of the species *Cereiformis*, *Heptagona*, and *Virosa*, African plants, furnish the Ethiopians with a mortal poison for their arrows; whilst that of the species *Cotinifolia* serves a like purpose for the wild Brazilians. The species *Hiberna*, before the introduction of mercury, was frequently administered in England against venereal affections; and the Spaniards employ the species *Canescens* for a similar purpose to the present day. The species *Hibernica* is extensively used by the peasantry of Kerry, in Ireland, for the purpose of stupefying fish; and so powerful are its qualities said to be, that a small creel or basket filled with the bruised plant suffices to stupefy the fish for several miles down a river. The species *Hypericifolia*, a plant of tropical America, is astringent and somewhat narcotic, and is employed in the diarrhoea of children and as a vermicifuge; and the species *Thymifolia* is employed for a like purpose in India. The root of the species *Ipecacuanha* is said by Barton to be equal to the true ipecacuanha, and in some respects superior, and not unpleasant either to the taste or smell. It is commonly known as American ipecacuanha, from its use in the states of North America as an emetic. The root of the species *Corallata*, called Milk-weed in the states of North America, has similar properties. The fruits of the species *Lathyrus*, or Caper Spurge, are sometimes pickled and employed as ordinary capers, although the process of pickling appears in a great measure to destroy the acrid purgative properties which the fruit possesses in a fresh state; the use of such a substitute is by no means free from danger. The seeds are purgative, and yield by expression a very active cathartic oil; they were formerly called *Semina Cataputiae minoris*. The capsules are reported to intoxicate fish. The leaves of the species *Nereifolia* are

said to be prescribed by the native practitioners of India, both internally, as a purge and deobstruent, and externally, mixed with Margosa oil, in such cases of contracted limb as are induced by ill-treated rheumatic affections. The roots of the species *Palustris* and *Pilosa* are used as purgatives, and are said to have proved useful in hydrophobia. The sap of the species *Phosphorea* is said to shine with a phosphorescent light in the ancient forests of Brazil, on a warm night. The species *Petitiana* and *Schimperiana* have very purgative properties, and are said to be sometimes mixed with Kousso to increase their activity. Many other species possess purgative properties. The species *Tirucalli*, a native of India, is common in the Madras presidency, and makes an excellent hedge, as no cattle will touch the leaves; the fresh acrid juice is used as a vesicatory. The species *Tribuloides*, a native of the Canaries, is regarded as a diaphoretic.

EXÆCARIA.—The juice of the species *Agallocha*, or even its smoke, when burnt, are said to affect the eyes with intolerable pain. Some sailors, as recorded by Rumphius, who were sent on shore to cut some fuel, having accidentally rubbed their eyes with some of the juice, became blinded, ran about like distracted men, and some of them finally lost their sight; the juice is said to be thick and nauseous, and to act as a violent purgative.

HIPPONANE.—The species *Mancinella* is the famous Manchineel tree, which is asserted to be so poisonous that persons have died from merely sleeping beneath its shade. The juice is of a pure white colour, and when dropped on the hand burns like fire, forming an ulcer which is very difficult to heal. Seemann states, that if sea-water be applied to the eyes when affected by the poison, it allays the inflammation in an effectual manner. The fruit, which is very beautiful in appearance, and somewhat resembles an apple, contains a similar juice, but of a milder form; the burning caused in the lips of those who bite it guards the careless from the danger of eating it.

HURA.—The species *Crepitans*, the Sand-box tree, or Monkey's Dinner-bell, is also very acrid; the fruit of this tree is composed of numerous one-seeded cocci, which, when dry, separate from each other with great force. It is said that the seeds have been given to negro slaves, to the extent of one or two, as a purgative, with fatal consequences.

HYENAUCHE.—The Cape colonists are said to destroy hyenas by rubbing mutton over with the powder of the fruit of the species *Globosa*.

JATROPHA.—The Hindoos obtain from the seeds of the species *Gluca*, by careful expression, an oil having a stimulating property, which they recommend as an external application in cases of chronic rheumatism and paralytic affections. The seeds of the species *Gossypifolia*, Bastard French Physic Nut, possess purgative properties. The seeds of the species *Multifidus* (*Curcas multifidus*) and *Purgans* (*Curcas purgans*) are called physic nuts. They yield by pressure fixed oils; and both seeds and oils are drastic cathartics. The varnish used by the Chinese for covering boxes is said to be made by boiling this oil with oxide of iron. The leaves are considered to be rubefacient and discutient, and the milky juice is supposed to have a detergent and healing quality, and dyes linen black.

MANIOT.—The species *Aipi* (*Janipha*, or *Jatropha Loefflingii*), Sweet Cassava, is generally considered to be a variety of the species *Utilissima*, but has none of its poisonous properties. Its roots, which are as mealy as a potato when boiled, are a common article of food in the West Indies and some parts of South America. Cassava meal and bread, cassava starch, and tapioca, are prepared from the sweet as well as bitter Cassava. The species *Utilissima* (*Jatropha*, or *Janipha Manihot*) is the Bitter Cassava. Both its roots and expressed juice are virulent poisons, supposed to be due to the presence of hydrocyanic acid; the poisonous principle is, however, dissipated during the process for obtaining the meal, which is by grating the washed roots, and then subjecting the pulp to pressure and drying over the fire. Cassava starch is deposited from the expressed juice, and is afterwards washed and dried. Tapioca is obtained by submitting Cassava starch while moist to heat on hot plates; it is largely consumed as a dietetic substance in this country and elsewhere. The sauce called Casareep, in the West Indies, &c., is the juice, concentrated by heat and flavoured by aromatics.

MAPROUNEA.—The species *Braziliensis*, or *Marmeiro do Campo*, of Brazil, yields

a black dye, which is, however, fugitive; and a decoction of the root is employed as a remedy in derangement of the stomach.

MERCURIALIS.—The species *Annua* has a nauseous taste, and is slightly purgative. It is mucilaginous, and was formerly employed as an emollient. The species *Perennis* is much more active, and is said to have produced violent vomiting, diarrhoea, a burning heat in the head, convulsions, and death. The species *Tomentosa*, a Mediterranean shrub, has been used in hydrophobia.

OLDFIELDIA.—The species *Africana* yields the valuable timber known as African oak.

OMPHALEA.—The species *Triandra*, a Guayana plant, possesses a white juice, which turns black in drying, and is used as a substitute for ink.

PEDILANTHUS.—The bruised leaves of the species *Conami* are used for inebriating fish. The species *Tithymalooides* possesses an acrid, bitter milk; a decoction of the dried shrub, and that of the species *Padifolius*, or Jew's-bush, has been employed in syphilitic cases and amenorrhœa. The root is emetic.

PHYLLANTHUS.—The root, young shoots, and leaves of the species *Niuri* are considered in India as deobstruent, diuretic, and healing; the leaves are very bitter, and prove a good stomachic. Some other species, particularly *Urinaria*, are powerful diuretics.

PLUKENETIA.—The leaves of the species *Corniculata*, when boiled, are said to form an excellent pot-herb, and the plant is cultivated for that purpose at Amboyna.

RICINUS.—The species *Communis*, the castor-oil plant, or Palma Christi, and other varieties, are largely cultivated in the East Indies for the sake of its seeds, which are called castor-oil seeds, and were formerly known as Semina Cataputiae majoris. The well-known laxative castor-oil is obtained from the seeds by expression, either with or without the aid of heat, by decoction, or by the aid of alcohol. That employed in this country is obtained by expression alone. When whole, these seeds possess great acridity, and have occasioned death when swallowed; this acridity is due to the presence of a resinous principle which resides in the embryo and albumen of the seed, particularly in the former; and its presence, in minute quantity, probably communicates to the oil its laxative property. The article sold in gelatine capsules, and designated Concentrated Castor-oil, is said to be adulterated with croton-oil, which is a dangerous addition, and may give rise to serious effects in some cases. The leaves have been lately recommended for promoting the secretion of milk, and are used both as an external application and administered internally. When cultivated in Great Britain, the castor-oil plant is an annual, seldom exceeding three or four feet in height; but in other parts of the world it is stated to be perennial, arborescent, and to attain the height of fifteen or twenty feet, and its broad palmate leaves, and prickly capsular fruit, render it a pleasing object. Some writers consider it to be identical with the plant termed kikajon, or kikayon, in the Bible,* and translated gourd. It has been recently cultivated in Algeria, for the purpose of feeding silkworms on its leaves, and the oil has also been employed there for burning; and, when deprived of its acrid principle, it is said to be useful for food.

ROTTLERA.—The fruit of the species *Tinctoria* is covered with a red powder, which is used for dyeing purposes. This dye is known at Aden under the name of Waras, or Wurrus, and in the Indian bazaars is termed Kamala. Kamala is much employed in India as an anthelmintic, and in certain cutaneous diseases. The Arabs also use it in leprosy, &c. It was lately introduced to the notice of the medical profession in this country by Mr. Hanbury, but its employment does not appear to have been attended with much success. The root of the plant is also stated to be employed for the purpose of dyeing.

SAPIUM.—The species *Ancuparium* is stated to be very poisonous. The exhalations from the plant alone producing erysipelatous phlegmasia.

SIPHONIA.—The species *Elastica*, a native of Brazil and Guiana, furnishes nearly all the India-rubber or caoutchouc which is used in this country.

STILLINGIA.—The seeds of the species *Sebifera*, a Chinese tree, and common in most tropical countries, are enveloped in a fatty matter from which candles are made, and a

* Jonah iv. 6;

mild oil is furnished by them. It is called the Chinese Tallow-tree. The root of the species *Sylvatica*, or Queen's-root, is regarded in the states of North America as a specific in syphilitic affections ; it is alterative, emetic, and cathartic.

STYLODISCUS.—The bark of the species *Trifoliata* is astringent, and its wood, which is of a red colour, is employed in Java for the masts and spars of small vessels.

TRAJIA.—The species *Cannabina involucrata* and *Volubilis* possess solvent diaphoretic and diuretic qualities, and the root of the species *involucrata* is considered by the Hindoo doctors to possess valuable properties in altering and correcting the habit in cases of cachexia, and in old venereal complaints attended with anomalous symptoms.

SHOP FURNITURE AT THE INTERNATIONAL EXHIBITION.

As the day for closing the World's Show-room approaches, its contents seem to become more numerous and more interesting. We know that the time left us for examining the grand collection of collections is very short, and as we are determined not to overlook anything bearing on our trade, we are led to notice exhibits which have hitherto escaped our attention. One of these we will now describe, and we feel assured that those among our readers who have not yet paid their final visits to the Exhibition, will thank us for directing them to a group of objects in which they must take an interest. We refer to the fine display of Chemists' Shop Fittings and Decorations, contributed to Class XXX. (Furniture) by Mr. M. Tomlinson, of Manchester, who appears to be the only shop-fitter represented in the class. The exhibit, which will be found near the entrance to the Mediæval Court, consists of a neat prescription counter with curved glass panels in front, upon which is placed three large show jars; two nests of drawers; a range of shelving, supporting bottles and jars of various colours and patterns; a dentist's operating chair, and several beautiful specimens of illuminated glass. The large show jars are particularly worthy of notice, as we understand that Mr. Tomlinson has a patent for them. They are mounted on mahogany stands, panelled with illuminated glass. The centre one is unusually large, standing nearly four feet high ; it is embellished with the Royal arms of England, while the two smaller jars, supporting it on either side, display respectively the arms of France and Prussia. Behind these show jars is placed a very handsome glass tablet, valued at twenty-five guineas, on which is painted a vase of British flowers ; and at the foot of this are small panels of landscape scenery and cattle. Above the tablet is a neat scroll of plate glass, enclosed in a richly-carved mahogany frame, showing the name and address of the exhibitor in illuminated letters. The glass labels on the drawers are in excellent taste, and must be extremely durable. The whole exhibit forms a very effective representation of modern shop furniture.

SCIENTIFIC INTELLIGENCE.

Acclimatization of Sponges.—M. Lamiral, who left France for the coast of Syria early in the year, with a view to obtain sponges for transplantation, has now returned, and presented a detailed report of his proceedings to the Société d'Acclimatation. M. Lamiral distinguishes three kinds of sponges for which there is a demand—the fine and soft sponge, called *abland* ; the fine and hard sort, called *achmar* ; and lastly the common sort, called *cabar* by the Arabs. These sponges are found in the Levant within the 36th and 33rd degrees of latitude—that is, between Alexandretta and Saida. It is now universally acknowledged that sponges belong to the animal kingdom, and are an aggregate of cellules built up by gelatinous polypi similar to those which construct madrepores, porites, and other polypifers. When the sponge is first gathered at the bottom of the sea, it is covered with a black but transparent gelatinous substance, resembling vegetable granulations, among which microscopic white and oviform bodies may be distinguished. These are the larvæ destined to perpetuate the species. When arrived at maturity, they

are washed out by the sea-water which incessantly flows through the sponge; they then swim along, by the aid of the vibrating cilia or hairs with which they are provided, until they reach a suitable rock, to which they attach themselves, and there commence a new life. This emigration of the larvæ from the parent sponge occurs about the end of June and beginning of July. The fine qualities of sponges are chiefly found at a depth of 15 fathoms or thereabout; the common sponge lies at depths varying between 20 and 30 fathoms. At Tripoli (on the coast of Syria, not of Africa) M. Lamiral engaged some divers, who commenced operations on the 21st of May. The sponges gathered were immediately placed in boxes, through which a stream of sea-water was constantly made to flow, the animal matter being, of course, left on them, and protected from injury. These sponges arrived at Marseilles on the 17th of June; thence they were taken to Toulon and the highlands of Hyères, where stone troughs, with five sponges in each, were sunk in different places. The success of the experiment will not, of course, be known until next season.

Thallium.—We hear that one of the most eminent continental chemists, one of the Jury of Class 2, has presented Mr. Crookes with several tons of material, containing large quantities of thallium. This act of kindness shows how Mr. Crooke's discovery is appreciated on the Continent, although his own countrymen tried hard to carry out the old adage about prophets at home. The Royal Society has presented Mr. Crookes with £50 to continue his researches, and furnaces and other appliances are being erected for the purpose of extracting the metal from its ore. We shall soon know as much about this new metal as we do about its congener, lead. Who knows?—perhaps the *Chemist and Druggist* for the year 1872 may be printed from types made of thallium alloy.

Danger in Copper Gas-pipes.—It has been discovered that when gas-pipes constructed of copper or bronze have been long submitted to the action of ordinary coal gas, an explosive compound of copper and acetylene (one of the many ingredients of coal gas) is formed. When dry, this compound detonates with extraordinary violence as soon as it is rubbed, struck, or heated. Already some accidents have occurred, and some workmen have lost their lives while cleaning large copper gas-pipes from this circumstance. No such explosive compound appears to be formed when iron or lead is used. It is evident that large copper gas-pipes are unsafe, and that some other metal should be substituted for the copper, as the latter may give rise to explosions at any moment. As concerns small pipes constructed of this metal, they should not be allowed to get foul; and when about to be cleaned, hydrochloric acid should be introduced into them for about ten minutes before they are submitted to any heat or friction. Hydrochloric acid decomposes the explosive compound, combines with the copper, and puts the gas acetylene in liberty. The acid may then be washed out with hot water.



The County Court Guide. A Handbook to the Practice of these Tribunals. By W. A. HOLDSWORTH, Esq., Barrister-at-Law. London: Routledge, Warne, and Co., Farringdon-street. New York: 56, Walker-street.

AFTER much unnecessary discussion, and the usual amount of pertinacious opposition on the part of conveniently Conservative lawyers, the necessity of a cheap and ready mode for the recovery of debt was recognised. The county courts, as at present constituted, were established in 1847; and although in their administration many glaring defects are patent, they are still a vast improvement upon the old style of procedure, and are doubtless a great boon to the mercantile community. The abolition of written pleadings materially simplified the transaction, and a claim can now be established and enforced with small expense, as well as with a due regard to the interests of both debtor and creditor. A man is permitted to state his own case, and if requisite can conduct

his own ease. In order, however, to prevent an abuse of this privilege, and with the view of an equitable distribution of justice, certain forms and rules of practice must be retained. The object of the work before us is to enable suitors to dispense with professional advice. It is compiled with great care, the laws of evidence are lucidly explained, and the different stages of the proceedings commented on in language intelligible to all classes. It contains an appendix of useful forms, and tables of fees and costs. It may be consulted with advantage by all tradesmen, and will frequently prevent futile legislation, if its contents are referred to when any such difficulties arise.

Preliminary Researches on Thallium. By WILLIAM CROOKES, Esq., F.C.S.

THE discovery of the interesting metal Thallium, by Mr. Crookes, has been frequently alluded to in these pages. Being honoured with a grant by the Council of the Royal Society for the purpose of defraying some of the expenses of his researches on this new element, Mr. Crookes lost no time in bringing before this Society an account of the results of his preliminary investigations, particularly as an attempt had been made to connect the name of M. Lamy with the discovery of the metal. The memoir has now been printed for private circulation, from the *Proceedings of the Royal Society*, and will be treasured by the friends of Mr. Crookes, as it proves most conclusively that the sole honour of the discovery of Thallium belongs to him.

NEW BOOKS.

- Birks on Matter and Ether, Laws of Physical Change. Crown 8vo. 5s. 6d.
 Hunt's Handbook to the Exhibition, 1862. Vol. II. 12mo. 4s. cloth.
 Mayne's Medical Vocabulary. Second Edition. Fcap. 8vo. 8s. 6d. cloth.
 Mapother's Physiology, and Aids to Study and Treatment of Disease. 9s.
 Marct on Chronic Alcoholic Intoxication. Second Edition. Fcap. 8vo. 4s. 6d.
 Poland's Trade Marks, the Act of 1862, with Notes. 12mo. 5s. 6d.

PUBLICATIONS RECEIVED.

Savory's Compendium of Domestic Medicine, and Companion to the Medicine Chest. (This admirable work will be reviewed in our next.)—Pharmaceutical Journal.—Intellectual Observer.—Exchange.—Technologist.—Grocer.—Geologist.—Weldon's Register.—Medical Circular.—Chemical News.—Mechanics' Magazine.—Practical Mechanics' Journal.—Civil Engineer.—Journal of Society of Arts.—American Journals: Scientific American.—American Medical Times.—American Agriculturist (New York).—American Journal of Pharmacy.—Dental Cosmos (Philadelphia).—American Journal of Science and Arts (New Haven).—Chicago Medical Examiner.—Chicago Medical Journal.—Boston Medical and Surgical Journal.—San Francisco Medical Press.



WEBSTER'S METHOD OF PREPARING OXYGEN.

THE high cost of oxygen gas, amounting usually to several pounds per thousand cubic feet, has hitherto prevented its economical application, either for the purposes of the smelter, or for producing an intense degree of artificial light. Mr. Webster has taken out a patent (which is now being worked by the OXYGEN GAS COMPANY) for a "means of producing a nearly pure oxygen at less than a tenth of the usual cost, so as practically to reduce the expense to a few shillings per thousand cubic feet." The plan proposed is the employment of a mixture of commercial nitrate of soda and oxide of zinc, this is heated to dull redness in a retort, when, it is stated, oxygen gas is given off, leaving "caustic soda and other alkali with the original zinc."

The materials are used in the proportions of two of oxide of zinc to one of nitrate of soda; but the process may be extended with the same quantity of zinc and additions of the original proportion of the nitrate of soda.

For example, in the workings carried on before Professor Pepper, the operation commenced with 20 lbs. of oxide of zinc and 10 lbs. of nitrate of soda, and the average yield of gas from these was 50 feet. When this was given off, a further portion of 10 lbs. of the soda was added to the residuum, and the result was again about 50 feet; a third portion of 10 lbs. of the soda was added, and the result of the three charges was 150 feet, rather more than less.

The mode of proceeding is as follows:—Having dried the nitrate of soda and the oxide of zinc, pound or grind them together, place them in the retort, which should be of a dull red heat. The gas evolved is then to be pressed through an apparatus, termed a purifier, which contains the moistened residuum of previous operations. The promoters further state that—

"The materials placed in the purifier, after having served for the purification of three or four, or more charges of gas, can be renewed, and it will be found that the alkaline portion has become converted into nitrate of soda; if this be exposed for a short time to the atmosphere, and the acid water from the bottom of the condenser then added to it, it will have become nitrate of soda, and thus, when dried and placed in the retort, will yield a further supply of gas.

"When the residuum from the retort increases beyond the requirements of the purifier, it should be thrown quickly, while hot, into water and well stirred, in order to disengage the alkali from the oxide of zinc. It may be allowed to remain some hours, when the solution can be drawn off and further water added to the residuum, in order thoroughly to extract the alkali and to leave the oxide of zinc alone.

"This alkaline solution of lye can be disposed of to soap-boilers or others, or, the alkaline solutions being boiled in an open vessel till all the water is evaporated, will leave the alkali, which can be disposed of in the solid form. The zinc, after the washing out of the alkali, may be heated to redness and spread open to the air, when it will absorb any oxygen it may previously have lost, and it will serve again and again.

"The cost of producing the gas should not exceed 8s. per 1,000 cubic feet."

We have never been impressed with an exalted notion of Polytechnic chemistry, but should have imagined that Mr. Pepper would have hesitated before permitting his name to be advertised as having verified the above passages of nonsense.

It is true that when nitrate of soda is heated, impure oxygen, mixed with nitrous fumes, is given off; but the production of pure caustic soda and other alkali is entirely beyond our chemistry. Again, it is stated that the alkali can be extracted for soap-boilers' use by throwing the residuum into water, so as to leave the oxide of zinc. If the promoters of this scheme were acquainted with the merest rudiments of chemistry, they would be aware that oxide of zinc is freely soluble in solution of caustic soda, which consequently could not be procured pure in this manner; and the mixture, from containing oxide of zinc, would be perfectly useless to soap-makers. But the crowning absurdity is the exposure of the zinc after the removal of the alkali to the air to absorb the oxygen it may have lost, and become useful on second and subsequent times. The idea of oxide of zinc losing oxygen when heated with nitrate of soda, is the profoundest bit of chemical bathos we have ever seen in print.

There is no doubt but that oxygen gas can be procured in an impure state by heating nitrate of soda, or almost any nitrate, but it is always accompanied with nitrous fumes, which may be absorbed by an alkali, or even by water; but we are doubtful as to the utility of the oxide of zinc employed, and certain as to the absurdity of the explanation of its action.

SAVORY AND MOORE'S MEDICAL CASES.

MESSRS. SAVORY AND MOORE, of New Bond-street, have recently made several very important improvements in the arrangements of medical cases, particularly those adapted for use in the army and navy. Their medical panniers are a marvel of ingenuity in packing, every medical appliance that can possibly be required in active service being contained in two small hampers, adapted for placing on the back of a mule or pack-horse.

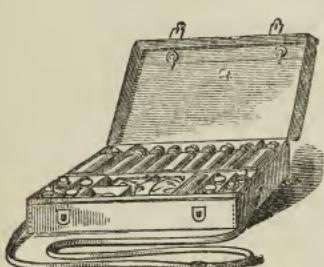
As an example of the extreme economy of space and convenience of arrangement in these chests, we may instance the medicine chest arranged for use in yachts, and which is equally adapted for parties travelling by land; for medical men in the country, who often establish what may be termed branch surgeries in private houses in villages distant from their own residences; or for clergymen who, following the good example of the Rev. Sidney Smith, study medicine to such an extent as to enable them to dispense healing to their poorer parishioners.

This case contains twenty-eight stoppered bottles, four jars, tin cases for plasters, space for lint, and all those surgical appliances likely to be required on an emergency, such as

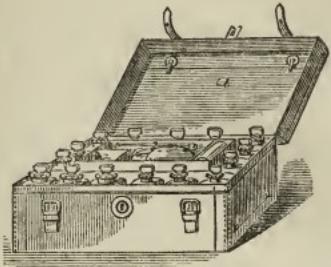
splints and bandages. The whole are so arranged, that on opening the case everything is presented, so as to be ready to the hand of the dispenser. This case contains sufficient medicines for a crew of twenty men for a long voyage.

As a contrast to the yacht case, we may instance one of the smallest and most portable cases ever constructed—we allude to the pocket pill case, which contains twelve different kinds of pills in vulcanite tubes, the entire being of such a size that it is readily carried in the pocket.

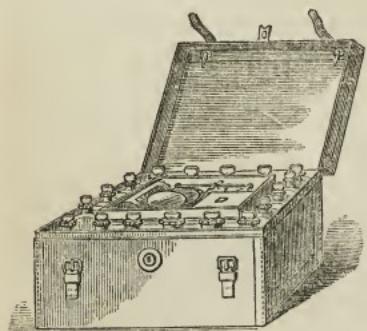
Among those that are most distinguished by novelty in design and compactness in arrangement, are the small leatheren travelling cases, Figs. 1, 2, and 3.



No. 1.



No. 2.



No. 3.

The first of the accompanying sketches, Fig. 1, exhibits one of these, which may be truly termed a *multum in parvo*, as in the space of nine inches by six, by about two inches in thickness, we have stowed away scales, weights, measures, eight large stoppered bottles for liquids, several smaller ones for pills and powders, and space for any special medicines that may be required. It has been truly said of this little case that it would scarcely fill up any appreciable room in the travelling bag or portmanteau, and will carry all the medicines required in any case of emergency. Its value to a party of tourists or a single traveller remote from medical aid, or to a set of explorers, can hardly be overrated. These cases have been used by the special correspondents of the

Times and other daily papers, in almost every quarter of the world, and they have testified most strongly as to their value and efficiency.

THE MONTH

United Society.—*Meeting at Liverpool.*—We extract from the *Liverpool Mercury*, of the 24th ultimo, the following report.—“Yesterday a meeting of chemists and druggists was held in the Clarendon Rooms, for the purpose of promoting the objects of the United Society of Chemists and Druggists. Mr. Cyrus Buott, travelling manager to the society, who was called to the chair, stated the objects of the society, which had branches in all the principal towns of the kingdom, and already numbered 1,200 members, although it had been only about a year in existence; the chairman concluded by moving that a district association be formed in Liverpool. During his visit to this town he had obtained 100 conditional adhesions to the society.—The motion was seconded by Mr.

Wallworth, and carried unanimously.—On the motion of Mr. Wallworth, seconded by Mr. Pearson, Mr. R. Clay was requested to accept the office of chairman.—Mr. Buck was appointed secretary, on the motion of Mr. Green, of Birkenhead.—It was also agreed that the association in Liverpool be represented by four local secretaries, and by one in each of the neighbouring towns.—A resolution was also passed pledging the meeting to aid the committee in promoting an annual public meeting on behalf of the society's benevolent fund.—A vote of thanks, on the motion of Mr. Hendry, was passed to the committee of the United Society of Chemists and Druggists, for their efforts to obtain for the trade exemption from service upon juries; and protesting against the partial legislation which has limited that exemption to a fractional portion of the trade who least needed it.—Mr. T. S. Partridge, in seconding this motion, took occasion to refer to the homœopathists, who, he said, were materially infringing upon the allopathist dispensers. He gloried in announcing himself an allopathist dispenser. He was proceeding with some further observations on homœopathy, when he was called to order by the chairman. Upon the resolution being again read, the speaker admitted that in his remarks he had digressed from the motion.—The proceedings then terminated, with a vote of thanks to the chairman."

Poisonings.—*An English Borgia.*—The evidence given by Dr. Taylor on the trial of Catherine Wilson, the wretched woman who will ascend the scaffold on Monday next, and the remarks made by the Judge in the summing up, have excited great distrust and anxiety. Referring to the facts which had been brought before him, the learned Judge said, "These, I regret to say, render it extremely probable that the startling statement made by Dr. Taylor is correct, and that in the midst of apparent prosperity and obedience to the law, a dreadful crime and vice is rife in the metropolis—the destruction of life by secret poisoning." The history of Catherine Wilson is so plainly narrated by a writer in the *Daily News*, that we cannot do better than reprint his words.

"Within her narrow circle and up to the limit of her opportunities she was a perfect Borgia, or female Palmer. And it was evidently the study of her life to multiply these opportunities. She moved quietly about from place to place, from one circle to another, repeating at every change the same awful tragedy. In every instance the victims were promptly selected, gradually folded with serpentine dexterity in the coils of a fatal intimacy, and the necessary position of confidence and control having been once secured, struck down with a stealthy and remorseless blow. The presiding Judge, in passing sentence, enumerated five instances during the last eight years in which the prisoner had pursued this course with fatal success, and one in which she had attempted it and failed. These are of course cases that had been definitely traced. How many other instances of partial or complete success may still remain undiscovered, it is impossible to say. . . .

"The particular crime for which this guilty woman is at length condemned was committed no less than six years ago; and considering the long interval that has elapsed, and the great difficulty of obtaining definite proof in such cases, the evidence produced at the recent trial must be remarkably satisfactory and conclusive. It was of course purely circumstantial, but the circumstances proved were so decisive that the conviction of guilt amounts to a moral certainty. About Christmas, in the year 1855, the prisoner went to lodge with Mrs. Soames, a widow lady, residing with her two daughters in Alfred-street, Bedford-square. She occupied the first-floor, unfurnished, and a young man, named Dixon, afterwards one of her victims, but who she said was her brother, came with her, and for a time occupied one of the rooms on that floor. Her first object in taking up her residence in the house was to establish herself in her landlady's confidence, and secure her good opinion, and in this she appears to have succeeded. The eldest daughter, in giving her evidence, states, 'The prisoner became on very intimate terms with my mother soon after she came, and my mother frequently went to her room. The prisoner, Mrs. Wilson, continued to live in the house on terms of growing intimacy till the month of October.' On Wednesday, the 15th of that month, Mrs. Soames went to see her brother, who resided at Holloway, with the view of obtaining some money from him, and he let her have £9 in gold. A legacy of £100 had been left her by her father a little while before, which she appears to have received from her brother by instalments, so that she had been in the habit of going to him from time to time for money. Her brother deposes, that when with him on the afternoon of this day his sister was in her usual good health and spirits. On returning she had tea with her daughters as usual. 'While we were at tea,' deposes the eldest daughter, 'the prisoner came in, and told my mother she wanted to speak to her, and she went up to her room.' During the night Mrs. Soames was attacked with violent sickness and great pains in the chest. The pains and sickness appeared to increase rather than diminish, and during the whole of Thursday the poor woman was very ill. A medical man, Dr. Whidborne, was sent for, and he, taking the symptoms to indicate English cholera, administered the usual soothing draught, to arrest the progress of the disorder and relieve the pain. The prisoner was constant in her attendance on the sick woman, and insisted on giving her the medicine. After taking it, however, the terrible pain in

the chest and the sickness came on with greater violence than before. On his second visit, the doctor being surprised and puzzled at this unexpected result, prescribed a stronger opiate, in the hope of affording relief. This, too, was administered by the prisoner, and with the same result of aggravated symptoms as before. Both daughters depose that during the day the prisoner several times gave their mother something to drink in a tumbler, while the younger adds that she expressly told her that it was a mixture of brandy and egg. The poor woman continued to get worse, and, after suffering dreadful tortures, died during the Friday night. Dr. Whidborne was so dissatisfied and suspicious, that he refused a certificate as to the cause of death, and made a *post mortem* examination, with the view of ascertaining whether poison had been administered. No traces of it were, however, discovered. Both he and Dr. Taylor agree, however, that the symptoms were not those of English cholera, and could only be accounted for on the supposition that some vegetable poison had been administered and rapidly absorbed into the system. What this poison really was, another part of Dr. Whidborne's evidence may serve to explain. He says:—‘A person named Dixon lodged in Mrs. Soames's house, and he died there in June, four months before the death of the deceased. During his illness I had a conversation with the prisoner, and she told me that Dixon had been in the habit of taking colchicum for rheumatism, and I told her that it was a very dangerous medicine, and that it should not be administered except under medical supervision; and the prisoner replied that she knew this, and was well acquainted with it. An overdose of colchicum would produce all the symptoms that were exhibited by the deceased—namely, vomiting, purging, sickness, and pain in the chest and bowels. No such results could have followed the administration of the medicine that I prescribed.’ Dr. Taylor's evidence as to the influence of colchicum was to the same effect, and there can hardly be a doubt that the poor woman died from this poison. A number of decisive circumstances connect the prisoner with the administration of the poison. She not only gave the medicine, as we have seen, and another mixture, with her own hands, but she kept the bottles containing the medicine carefully locked up in her own room; and on being asked by Miss Rose, one of the lodgers, why she did so, explained that ‘it was particular stuff, and she must administer it herself, and give it to the deceased with her own hand.’ It comes out in evidence, moreover, that the prisoner, with a view probably to her own protection, circulated in confidence the report that the deceased had poisoned herself; that she was privy to the fact, but did not wish to reveal it for the sake of her family. It was proved, however, that the poor woman was perfectly cheerful, in good health and spirits, with no motive whatever for committing such a desperate act, and had, in fact, made arrangements during her short illness on the expectation of her speedy recovery. If she died by poison, as the prisoner confidently asserted, there could be no doubt as to who had administered it. The only point remaining to be noticed is the motive for the murder, and this, as in every previous case of poisoning by the same hand, appears to have been money. The prisoner knew that Mrs. Soames had gone to her brother for money, and probably did not know how much she had actually received; but whatever it might be, she evidently resolved to possess herself of it; and, accordingly, no trace of the £9 in gold was found after Mrs. Soames's death. It appears uncertain whether she had not obtained other sums from the murdered woman. After her death she certainly obtained ten pounds from the daughters, on the faith of a document said to be in their mother's handwriting. But it is perfectly clear that this wretched woman had become so terribly familiar with the appalling crime of secret poisoning, that the certain prospect of even a comparatively small prize would be quite sufficient to incite her to another attempt. Fortunately, though justice has been slow in overtaking its victim, it has not failed, and this merciless woman will now expiate her offences on the scaffold.”

The evidence of the medical witnesses is thus ably commented upon by a writer in the *Illustrated Times*:—

“It is but a few months since that the disgraceful contradictions, folly, and ignorance betrayed by medical witnesses upon the subject of insanity led to the introduction into a bill proposed for enactment of a clause to the effect that medical testimony should be altogether excluded from inquiries into cases of alleged lunacy. A severer, graver public censure has never been passed in our time and country upon a profession claiming to be learned, than this was upon the doctors. Yet they bore it tamely, as who should suffer a consciously deserved punishment. Let them take heed lest it may not become absolutely necessary, if not to exclude medical evidence from cases of poisoning, to receive it with such extreme caution as to raise the strongest prejudice against the side on which it may be adduced. The memory of the Smethurst case is yet fresh in the public mind. We can all recollect the doctor who attended and treated the deceased woman, and who, nevertheless, was not aware of the most important fact for consideration in her case. Who does not remember Dr. Taylor's sad but frankly-confessed blunder of finding, by analysis, poison where he had himself placed it, and actually in the first instance giving this evidence against a prisoner on a capital charge? And but for the resolute persistence

of the press, Smethurst would have been hanged on this and like testimony. In this case of Wilson we have the same Dr. Taylor. Perhaps some persons of needlessly-refined sensibilities might have shrunk from again appearing in a matter of life and death to give evidence against a fellow-creature, after having once so narrowly escaped a fatal, irremediable error. This is a matter of individual taste. But what shall we say of Dr. Whidborne, whose evidence appears in the report? He says an overdose of colchicum would have produced the symptoms exhibited by the deceased; that he treated her for cholera; that he could not remember whether he had stated that death was caused by peritonitic inflammation; that he thought it was caused by this and other inflammation; and, lastly, that it was the last-named inflammation only. He refuses to give a certificate of the cause of death, searches for poison, finds none, then believes the deceased to have been natural; and finally comes forward to support a charge of poison, alleging that he should rather think it had been administered in several doses, and that any trace might have been naturally removed. Dr. Taylor attributes the non-discovery of the poison, not to its removal, but its absorption, which is exactly the contrary cause.

"Now, we are in no way supporting the theory of the prisoner's innocence. We believe her guilty, but her guilt is indicated by facts and circumstances totally independent of the medical testimony, which appears to us beneath comment. We have contented ourselves with stating a few of its most noxious points, and so leave it. But, if 'evidence' such as this is to be allowed in future, we fear it may result either in the escape of the guilty or the conviction of the innocent, as the case may be. It must not be forgotten that this same woman has previously been acquitted upon a charge of poisoning, a charge of which she was perhaps guilty, but which failed—a result not altogether unattributable to the insufficiency of the medical evidence to establish clearly a case of poisoning by one of the most easily-traceable of poisonous agents."

By Oil of Sweet Almonds.—On Monday, the 29th ultimo, an inquest was held at the Old Eclipse, Mansfield, on the body of Mr. Hurt, an eminent physician of that town. The deceased had been prevented from following his professional duties for some time, in consequence of indisposition. On Friday morning last, about 9 o'clock, Mr. Hurt went into his garden, shortly returning, and in doing so called in at the surgery. He then returned into the house, remarking that he was afraid he was going to have another attack of illness. He sat down in a chair and died instantly. A *post mortem* examination was made on the body, when it was discovered that the deceased had put an end to his existence by taking oil of sweet almonds. The jury returned the following verdict,— "That the deceased poisoned himself while in a fit of temporary insanity."

By Oxalic Acid.—Poison Labels.—On Saturday, the 13th ultimo, Henry Gibson, one of the keepers on duty in Kensington Gardens, was passing through the portion of the gardens called the "Black Lion Wood," when he perceived a man lying at full length, with his left hand under his head, which was supported on his arm. Froth was coming from his mouth, and Gibson remarked to him that he looked very ill. "Yes," he replied, "I have poisoned myself with oxalic acid." Gibson at once procured the assistance of another keeper, and they conveyed the man to St. Mary's Hospital, Paddington. On raising him from the ground they found a bottle and teacup in one of his pockets, and on reaching the gate of the gardens he pulled from his trousers' pocket an empty paper, on which were written the words, "Oxalic acid—poison." He soon became insensible, but came to again after the lapse of about two hours, and informed the house-surgeon of St. Mary's Hospital that he had been starving, and had taken an ounce of oxalic acid. The stomach pump was applied, and the usual remedies were administered, but in vain. He expired on the 19th ultimo. The name of the unfortunate man was Charles Pritchard, and from letters found upon his person, it appeared that he had long been in a very destitute condition. At the inquest, Dr. Lankester said that he did not think the writing of the word "poison" on the paper containing it was a sufficient precaution to adopt in selling an article like oxalic acid. In this case it was shown that deceased could read, but a case had come before him in which a person who could not read had been poisoned by taking oxalic acid in mistake for salts.

Alleged want of Caution by Chemists.—An inquest was held on the 19th ult., before Mr. Hooper, the coroner for West Bromwich, near Birmingham, on the body of Sarah Shaw, an infant aged five weeks. The mother stated that the deceased had suffered from a bad cough, and on the previous Tuesday she went to the shop of Messrs. Hudson and Pershouse, chemists, and asked for two pennyworth of cough syrup, mentioning the age of the child for whom it was required. She received bottle with a black label on it, but there were no directions respecting its administration. On her return home she gave the child half a teaspoonful, and shortly afterwards the child seemed to fall into a fit. Being alarmed, she took the infant to a surgeon, where she received some medicine, which was given without effect, the child dying on the following morning. Mr. Kite, surgeon, deposed to a *post mortem* examination made by him on the body of the deceased. He had seen and had in his possession the bottle of mixture, some

of which had been administered to the child, and it had a strong smell and taste of opium. He had no hesitation in asserting that the deceased died from poisoning by opium. The jury returned a verdict, "That the deceased had died from an excessive dose of opium, inadvertently administered." The foreman requested the coroner to communicate the opinion of the jury to Messrs. Hudson and Pershouse that sufficient caution had not been shown in labelling the bottle, and trusted that in future they would not send out medicines without proper written directions. In this case the druggist may have deserved the censure passed upon him, but the real fault is in mothers who have recourse to such dangerous means for the purpose of making easy what must usually be the troublesome business of nursing. It is quite preposterous to administer narcotics on every occasion when infants fret, and give audible utterance to the little grievances which they are born to suffer. Innumerable deaths arise from this barbarous practice, and the responsibility for them rests at least as much on impatient mothers as it does on the druggists by whom the vile compounds are vended.

British Association.—The Thirty-second Annual Meeting of the British Association for the Advancement of Science commenced at Cambridge, on Wednesday, the 1st instant, and terminated on Wednesday, the 8th instant. Professor Willis was the president. Next month our "Scientific Intelligence" will be confined to notices of the more interesting papers read in the Chemical and Physical sections of the meeting.

Miscellaneous Jottings.—*The late Mr. Wakley.*—The will of this gentleman, late M.P. for Finsbury, coroner for Middlesex, and proprietor of *The Lancet*, was proved in London on the 18th ultimo; the personality was sworn under £12,000, the executors being his son, Mr. T. H. Wakley, F.R.A.S., of Arlington-street, and Thomas Spalding, Esq., of Hendon. The property to be equally divided between his three sons.

A student (says the *Cologne Gazette*) travelling a few days back on the railway to this place, to light a cigar, took a phosphoric match from a box which he had just before purchased at Elberfield. The matches being tightly packed, the young man introduced his finger-nail between them to extract one, when a small portion of phosphorus passed under the nail and ignited. Although the flame was immediately extinguished, the hand had swelled so much on arriving at Dusseldorf, that a surgeon advised its amputation. The student would not consent, and proceeded to Cologne; but on arriving there the swelling had so much extended as to render the amputation of both hand and arm necessary.

The *Nouvelliste*, of Hamburg, says:—"At a banquet just given at Tronisee, in Norway, a dish of fresh beef was served which had been found last summer in some tin cases buried at Spitzbergen. According to indisputable indications, these cases were placed there by the Parry expedition in 1826. The meat was perfectly fresh, and had not contracted any bad smell."



Preparation of Oxygen Gas.—The most convenient mode of preparing oxygen gas in a pure form, for the purpose of experiment or lecture demonstrations, is by heating a mixture of ten parts of chlorate of potash and one part of red oxide of iron, prepared by heating the sulphate to redness. (This oxide is the coelcolar of vitriol of the ancient chemists, or the rouge of the modern jeweller.) Every grain of this mixture gives off rather more than a cubic inch of oxygen gas; comparatively slight heat is required to commence the decomposition of the chlorate, when the action goes on quickly but steadily, the whole oxygen being liberated in the course of one or two minutes. From the small amount of heat required, the flexible india-rubber tube may be stretched over the neck of the Florence flask holding the mixture, and led at once to the gas holder, and thus the troublesome appliance of perforated corks and glass tubes rendered unnecessary. The oxygen thus obtained is very pure; care, however, must be taken to employ the oxide prepared from the sulphate, as that occurring naturally will not answer, being rarely free from foreign substances.

Harmless Green for Confectionary.—The finest green colour is formed, as is well known to the readers of the *Chemist and Druggist*, from preparations of copper and arsenic; that of the subjoined formula is devoid of danger (published in the *Journal de Pharmacie et de Chimie*). Infuse for twenty-four hours 0.32 grammes of saffron in 7 grammes of distilled water, then take 0.22 grammes of carmine of indigo, and infuse it in the same manner in 15.6 grammes of distilled water. Then mix the two liquids together,

and a very beautiful green colour is obtained, which may be employed for colouring an immense quantity of sweetmeats (ten parts of this solution will colour 1,000 parts of sugar of a very beautiful green). This colour may be preserved for a long time, either by evaporating the liquid to dryness, or by converting it into a syrup.

A Portable Styptic.—The *Chemist and Druggist* is frequently and urgently applied to for something to arrest the haemorrhage from leech bites, &c.; the following styptic is strongly recommended by the *Moniteur des Sciences Médicales*. Soak amadou or German tinder in a solution of perchloride of iron of a density of about 1·255. It should then be dried in the sun, and rubbed between the hands to restore its suppleness and porosity. Small pieces applied to leech bites soon stop their bleeding. They may be held in their places by strips of plaster.

Illustrious Apothecaries.—Mons. Libri states that Dante was inscribed on the register of Florentine apothecaries. Sir Isaac Newton, when young, was placed with a Chemist and Druggist at Grantham. Sir Humphry Davy was apprenticed to an Apothecary at Penzance, where he was found by Gregory Watts, just as Bergmann discovered Scheele in a modest shop at Upsal. A monument to Sir Humphry Davy is about to be erected on the north side of Mount's Bay, near Penzance, where he was born.

Itch Ointment.—W. M.'s request for a receipt has called forth the following from S. L. (Bristol), who states that the preparation has never been known to fail:—

Ung. Sulph. comp. ʒiv.

Ung. Hyd. Fort. ʒi.

Three dressings will generally effect a perfect cure.

Filtering Essential Oils (J. M. D.)—We know of no better filtering media than those which you have tried. When volatile oils lose much of their odour, darken, and become thick and clammy, they should be distilled in order to separate the undecomposed portion from the resin. Agitation with animal charcoal will generally restore their clearness and original colour, but nothing more.

Marking Ink (J. B. S.)—The following is, we believe, an excellent formula:—Nitrate of silver and pure bitartrate of potash, of each 1 oz., are rubbed together in a Wedgwood-ware mortar, and after a short time liquor of ammonia, 4 ozs., is added; when the solution is complete, archil 4 drs.; white sugar 6 drs., and powdered gum 10 drs., are dissolved in the liquor, after which sufficient water is added to make the whole measure exactly 6 fl. ozs., when it is ready to be bottled for use. It requires no "paunce" or "preparation."—See article entitled "A Bottle of Marking Ink," in vol. i. of the *Chemist and Druggist*, page 136.

R. L. M.—We have endeavoured in vain to obtain the information you require.

The queries put by "Kappa" and "Hydrargyrum" will be answered if possible in our next.

We have to thank several correspondents for information about the manufacture and sale of "Indian Brandee," but still lack many important particulars.

* * * We cannot undertake to attend to anonymous communications, or to answer queries through the post.



THE STATE OF THE TRADE.

To the Editor of the *Chemist and Druggist*.

Oct. 6th, 1862.

SIR,—I was much pleased with the sensible and apropos letter of your correspondent, "J. C.," and fully endorse all his sentiments with regard to the visible decay of the drug trade, and the consequent "gentle poverty" of many of its members. In confirmation of his remarks, allow me to forward the following correspondence, as bearing with considerable force on the question, "Why has the Drug Trade declined?"

I received a communication from the Secretary of the Metropolitan Free Hospital in June last, and, thinking he must have made some error in addressing me, took no notice of his letter; but on 8th August I received the following:—

Metropolitan Free Hospital,
Devonshire-street, City,
August 8th, 1862.

SIR,—Permit me to invite your attention to an appeal addressed to you on 23rd June in behalf of this hospital.

The number of out-patients continue to exceed 2,000 weekly.

The funds are nearly exhausted, and without

immediate aid the Committee will be driven to the painful alternative of limiting the number of admissions.

The favour of an early reply will greatly oblige,
Sir, your obedient servant,
Geo. CROXTON,
Secretary.

B. W. S.—, Esq. (?)

To which I lost no time in replying as follows, although I was dubbed Esq. !

August 8th, 1862.

SIR,—With due respect I would suggest, on behalf of my fellow-sufferers, the Druggists, we are the *last* persons to whom you should apply for funds for the "Metropolitan Free Hospital," inasmuch as many persons who can afford to pay for medicine and advice at a druggist's will search for institutions such as yours to get relief from any ailments from which they may be suffering; now, without wishing to depreciate the value of such institutions as the one in question, to the really "deserving poor," yet I must enter my protest against losing my customers, and paying for the privilege twice!

This is emphatically a neighbourhood where "un-deserving" poor abound, who will seek the advantages offered by such an institution as yours, and spend the proceeds of their earnings in the "public-house;" winter comes, and not unfrequently these improvident persons have to be supported out of the poor's-rate, which here is at all times heavy. Under foregoing circumstances I must beg to decline to contribute anything to any public institution that acts (innocently, perhaps) in antagonism to the body to which I belong. I have known instances where persons have been supplied at public institutions with, say such an article as cod liver oil, and sold it to their neighbours. These and like transactions (for I know of many) are manifest injustices to us. Without offence, Sir, do not ask Druggists to contribute to your funds; I assure you it is an insult.

I am, Sir,
Yours faithfully,
B. W. S.

Mr. Croxton has not written since.

I beg to remain,
Yours very faithfully,
B. W. S.

September 20th, 1862.

DEAR SIR,—I beg, through the medium of the *Chemist and Druggist*, to express my gratitude to your correspondent of this month, for his able letter on the reprehensible practice of selling and advertising drugs at a low price. The sentiments expressed by your correspondent would, I doubt not, be echoed by all the scientific pharmacists of England. It is a plain fact that pharmacy must sink beneath the level of an honourable commercial pursuit, if it does not afford means of support to persons duly qualified to practise it. The quotations by your correspondent did but little surprise me, I must confess, when I thought upon the shallow education which our pharmaceutical apprentices usually receive. How can we expect anything but "buttermen's tickets," or other relapses of a similar nature, while the grand fact that "the boy is father to the man" is lost sight of? The usual education received is such as to impress upon his mind the idea that pharmacy is a common trade; and the addition of an oil and colour trade, which is of no unfrequent occurrence in the country, supports him in his view.

He is thus launched out into a business of his own, of which he naturally forms a very low opinion, and his actions correspond with his thoughts. If, on the other hand, the claims of the apprentice were universally recognised, and the duty of the master were fulfilled, his idea of the trade would be connected with the most serious responsibility, and he would consequently be ready to support any measure which would insure a due performance of the pharmacist's duties. The early closing movement would doubtless have a good effect, in affording time to the apprentice for study; but methinks it is the duty of every master to give practical and theoretical instructions in person, during the day (if possible), in the "museum of pharmaceutical poisons" itself. But while such arrant neglect is shown to the apprentice, how can we wonder at the loose and frivolous life which he leads, or the thoughtless actions into which he rushes when he finds himself in the position of master? Such are my views on this subject, and all pharmacists who respect the kindred sciences of Pharmacy, Chemistry, and Botany, will agree with me that such important items should not be omitted in the education of pharmaceutical apprentices.

I remain, Sir,
Yours, &c.,
W. G.

September 26th, 1862.

DEAR SIR,—I have often wondered which was the most lowering and reprehensible—puffing or cutting. Either, according to my idea, is very bad; but when both are combined, as is frequently the case, then things indeed look queer. In this provincial town there is a member of the trade who tells us that we may have at his establishment 1s. 1½d. patent medicines for 1s.; 2s. 9d. for 2s. 6d.; and so on. Not satisfied with this, he puts to us (the public) the momentous question, on a fairly printed handbill, not, "Have you seen Blondin?" Do you double up your perambulators? but "Have you a bottle of _____'s diarrhoea mixture in your house?" and winds up like the circus bills,—"Working people may be supplied with a single dose for 4d." Now, who would have diarrhoea after this?

Another case, though of a different character, may be alluded to. We hear now-a-days a good deal of one trade cutting into another. Linendrapers and fancy embroidery shopkeepers selling pomade and perfumes, and various others selling things foreign to the trade proper. In little country villages this is not objected to, and chemists may even descend to paints, &c.; but in a town, surely a chemist ought to be above selling paper, pens, envelopes, shilling novels, &c. &c., more particularly if he boasts M.P.S.

If the medicines chemists hands. Required in poison re-moment, Since with gra letter in this place to my hu labelled of me w done chil times five not give prices ar any more at some f to subse

Sin, the late Kenting the Un distrib trade is in no claimin mineral breath quite ti in on semi-justly sword Sure read to the Mr. L in the subse deffen Per to sup anoth un obje Socie shou enjoy acidi sensi long Al belie in a dama Now disp

dis

If the mania for underselling patent medicines increase, I fancy all respectable chemists will leave that branch in other hands. There are indeed alterations required in our trade in something more than poison retailing, and of quite as great a moment,—Sabbath breaking to wit!

Since writing the preceding, I have read with great interest "J. C.'s" admirable letter in this month's number. I have in this place the mortification of handing over to my hungry customers four pills, in a box labelled and papered, for 1d. They want of me what they obtain elsewhere: one dozen children's powders for 6d., and sometimes five pills for the 1d., but this I will not give in to. Generally speaking, our prices are pretty good. I must not take up any more of your space, as I may perhaps at some future time again request permission to subscribe myself,

Yours faithfully,
DODDAH.

Rochester, Sept. 26, 1862.

SIR,—I have read with great satisfaction the letter of your talented correspondent at Kensington. I wish it was in the power of the United Society to reprint this letter for distribution among the members of the trade who require to be reminded that there is no other instance in this country of men claiming to be educated receiving such miserable remuneration as they do. Our brethren need to be reminded also that it is quite time that we banded ourselves together in one large and inexpensive society for defensive purposes, for, as your correspondent justly observes, "we work daily with the sword of Damocles over our heads."

Surely none of those persons who have read his stirring letter will turn a deaf ear to the solicitations of our able manager, Mr. Buott, who is recruiting for members in the north, upon the basis of a 5s. annual subscription, but will at once join shoulder to shoulder, to carry out any project for self-defence which may be devised.

Perhaps it will not be out of place here to suggest that now we have shown one another that it is possible even for Chemists to unite in an undertaking having for its object our common welfare, that as our Society grows in strength and numbers, we should, by paying an increased subscription, enjoy that kind of protection in case of accident which the bargemen have been sensible enough to secure for themselves long ago.

All subscribers to their society are, I believe, defended in the Nisi Prius Court in all cases of accident, and the assessed damages wholly or partly paid for them. Now this is just what we can do, if so disposed.

Then let us consider how it would have

fared with Elliott, in his case of poisoning with sheep dipping, the Chemist who was mulcted £400 in consequence of a servant taking the wrong bottle off his counter, and the other unfortunate, who endured two years' imprisonment for selling a box of Morison's pills, had they been provided with solicitors and barristers accustomed to defend the rights of Chemists! Those victims would certainly have had a better, and perhaps a more successful defence than they had, while they would have been saved from such heavy pecuniary losses.

Most of us would, I am sure, be willing to pay an annual sum to secure so great a desideratum; there would be little probability of members running unnecessarily into danger in consequence of the comparative immunity thus to be enjoyed; for, in spite of all this, no means can be discovered to prevent the most certain injury to a man's business, consequent upon any accident, real or alleged.

We should probably have to arrange for a call upon each member, in cases of heavy damages, in the manner adopted by some death clubs on the decease of a member, which would very much reduce the annual subscription necessary to the retaining of legal advisers for our especial use; and furthermore, this would be a manifest advantage, knowing as we do that in an action-at-law, a man of straw has sometimes the vexation to find at the last moment that his counsel have either deserted, or are ignorant of the merits of his case; instead of this, we should have a limb of the law ever watchful and anxious, not only to pull us through at all times, but to bring us off with flying colours. The medical profession have been for years wisely strengthening their position, while the needy Chemists are left entirely to the mercy of twelve thoughtless jurymen, anxious only to be discharged to their homes.

Let us all bear in mind the truth of our friend R. S. M.'s remark, that "a man, though gifted with a clear intellect, thorough knowledge of his business, &c., cannot after all claim exemption from that common imperfection, fallibility; and is therefore liable to mistakes which may utterly ruin his prospects."

I shall be very happy to hear from any gentlemen their views on this subject, or give any further information.

I am, Sir,
Yours respectfully,
HENRY BARNABY.

[We have received from a subscriber at Hatherleigh, Devon, an advertisement cut from a Somerset paper, which shows to what extent trade cutting is practised by a member of the trade residing in Taunton.—*Ed. Chemist and Druggist.*]

M. MENIER'S CASE AT THE EXHIBITION.

Le Havre, 28th September, 1862.

SIR.—In the *Chemist and Druggist* of August 15th, under the head, "Chemistry and Pharmacy at the International Exhibition," you say, "That the French Chemists were frightened at the sight of the magnificent display of chemical products contributed by Dr. Stenhouse; and that about three weeks after the opening of the Exhibition, a series of synthetical organic compounds, from the laboratory of M. Berthelot, appeared in a 'corner' of the case of M. Menier."

Allow me to say, as one of the members of the French Pharmaceutical body who visited the International Exhibition, that the French chemists "admired" the contents of Dr. Stenhouse's case, as well as many other fine chemicals of the English department; but were not "frightened."

Referring to the synthetical compounds of M. Menier's case, you seem to suppose that these chemicals were not intended for the Exhibition before the apparition of Dr. Stenhouse's organic compounds.

There, Sir, you have been quite mistaken; they were sent with the other chemicals from the laboratory of M. Menier, in which they have been prepared, under the direction of Professor Berthelot, chemical adviser to

M. Menier. You will find them mentioned in the *French Official Catalogue* published at the beginning of the Exhibition, and sent to London the 4th of May. (See *London Illustrated News*, 10th May.)

Besides, Sir, that series of synthetical compounds, one of the most shining illustrations of the progress of Chemistry since the last Exhibition, could not be prepared in a few days. The absorption of the elements of water by carburet of hydrogen, for the artificial production of alcohol, is not yet in the reach of the manufacturer; and the production of a quart of alcohol only, lasted about six weeks.

I hope, that for the sake of truth and good international feelings, you will do me the favour of publishing this letter in some apparent "corner" of the next *Chemist and Druggist*.

I have the honour to be, Sir,
Your most obedient servant,
L. GUEROUT,
Pharmacie au Havre.

[Want of space prevents us publishing in the present number some rather strong letters which have been addressed to us on the subject of the exemption from jury service granted to members of the Pharmaceutical Society.—ED. *Chemist and Druggist.*]

OPIUM ALTERED BY AGE.—In his memoir on opium, M. Guibourt states, that in analyzing an opium kept in his store nearly twenty years, he obtained less morphia than he had extracted from the same opium when recent. The product obtained was strongly coloured, and the alcoholic solution equally so. The extractive matter (says the professor), and other principles without doubt, the morphia, perhaps, is converted into a brown body (apotheose?) little soluble in water, but soluble in alcohol like morphia, and precipitating with it by the cooling of the liquid, and can only be separated by combining the alkaloid with an acid, and decolorizing the salt by charcoal, &c.—*Amer. Journ. Pharm.* From *Rep. de Pharm.*

AUSTRALIAN LERP.—Laap or Lerp is a whitish saccharine matter, a singular insect production found on the leaves of the Eucalypti in some parts of Australia. The name was given by the aborigines of the north-west part of Australia Felix. We have samples of it in our private collection. The insects producing it are closely allied to the aptides, or green flies of rose bushes, geraniums, &c. Its chemical composition appears to be from an animal secretion, perfectly anomalous, so far as known, being composed of pure starch, which tastes sweet on the tongue, it is supposed by a rapid change into sugar by the action of the saliva. It has been suggested that from its large quantities in some parts of Victoria, and the ease with which it might be obtained, it may form a substitute for sugar or malt in distillation.—*Technologist.*

CHARACTERISTICS OF THE PURITY OF CHLOROFORM.—By M. HARDY.—If a little fragment of sodium is thrown into chloroform, it remains intact if the chloroform is pure. When this anaesthetic agent contains alcohol or other substance capable of alteration, gas is produced. In most cases these gases are hydrogen, marsh gas, or carbonic oxide; they are entirely formed of hydrogen and carbonic oxide if the foreign substance is wood spirit. This reaction occurs in the cold, and nearly instantaneously.—*Amer. Journ. Pharm.* From *Rep. de Pharm.*

BUSINESS in Chemicals has been rather more satisfactory, but in prices there is not much change. A fair amount of sales has taken place in Tartaric Acid, prices closing firm at 1s. 7½d. to 1s. 7½d. More doing in Citric Acid, at from 1s. 7½d. to 1s. 7½d. In Oxalic Acid business to a good extent has been transacted at 8½d. Iodine continues very dull, and the prices of 5½d. to 5½d. are almost nominal. Chlorate of Potass is more in request at 1s. 2d., which is rather a lower price. Several pounds of Prussiate of Potass have been sold at 1s. to 1s. 0½d. Bichromate remains dull, at 7½d. to 8d. A good business has been done in Sal Acetos at 10½d. Soda Ash is dull, and prices nominal, at 2d. to 2½d. per degree. Soda Crystals are firmer, but little business done, £4 17s. 6d. to £5 ex. ship. Sal Ammoniac is quiet, at 36s. for seconds, and 33s. for firsts. In Sulphate of Ammonia more doing, and the price firm at 14s. 6d. to 15s. Sulphate of Copper is steady, with small sales, at 32s. 6d. to 33s. Cream of Tartar is dull, and the price is almost nominal, at 120s. for fine. Some sales of Quinine have been made at 7s. 3d. for English. Flour of Brimstone is without change. Camphor is quieter. British refined Saltpetre is firmer, casks selling at 43s. to 43s. 6d., and barrels 44s. cash f. o. b. Canada Pot and Pearl Ashes are quiet at 34s. 6d. Turpentine further advanced; sales of American were made at 135s., and French at 123s. to 124s.; the market is now quieter, and prices nominal, at 130s. and 120s., respectively. Linseed Oil closed dull at 42s. 3d. in London, and 42s. in Hull, and 41s. 3d. to 41s. 6d. for the month. Rape Oil is also rather cheaper. Crude Petroleum has been sold at 16s. 6d. to 17s. per cwt.

The sales of Drugs have been small throughout the month. A few lots of Tinnivelly Senna brought 3½d. to 5½d. A parcel of fine picked Alexandria realized in public sale 3s. to 3s. 6d., being very high prices. Some small lots of fine Jalap have brought 5s. 6d., good 3s. 6d. to 3s. 10d. Ipecacuanha has been chiefly bought in at 8s. Cardamoms are again dearer. Malabar have realized 7s. 3d. to 7s. 6d.; Madras and Allepi, 5s. 6d. to 6s., light, 3s. to 3s. 3d. Sales of Oil Aniseed have been made at the reduced price of 5s. 10d. Oil of Cassia is held for 9s. 6d. Castor Oil is rather cheaper; some good pale selling at 7d. to 7½d. Balsam Capivi is steady, business done at 1s. 6½d. to 1s. 7½d. Cod Liver Oil was chiefly taken in at 4s. 9d. Some very fine Barbadoes Tamarinds brought 61s., and fair and good 21s. 6d. to 39s. Cubebs are lower, the late sales were taken in at 125s. Gambier is steady at 27s. Cutch is rather cheaper. Safflower further advanced, but is now quiet, and about 5s. under the late high prices. Shellac is more in demand, and fully 5s. to 7s. 6d. dearer. Yellow and Grey Bark have sold to a good extent at firm prices. Sales of Cascara were made last week at 20s. to 27s. A large parcel of Tonquin Musk was freely sold at 21s. 6d. to 22s., and inferior quality 17s. 6d. to 18s. 6d. Turkey Opium is rather cheaper, fine 18s. 6d. to 19s. Cummin Seeds are about 1s. lower.

PRICE CURRENT.

These quotations are the latest for ACTUAL SALES in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the CASH PRICES IN BULK. They will, however, be able to form a tolerably correct idea of what they ought to pay.

| | 1862. | 1861. | | 1862. | 1861. |
|-----------------------|--------------|--------------|--|---------------------|----------------------|
| | s. d. s. d. | s. d. s. d. | | s. d. s. d. | s. d. s. d. |
| ARGOL, Cape, pr. cto. | 90 0 100 0 | 95 0 105 0 | | BRIMSTONE, | |
| French | 30 0 60 0 | 60 0 85 0 | | rough.....per ton | 130 0 135 0 |
| Oporto, red | 45 0 48 0 | 45 0 50 0 | | roll..... | 200 0 220 0 |
| Sicily | 70 0 80 0 | 65 0 80 0 | | flour..... | 260 0 280 0 |
| Naples, white..... | 65 0 80 0 | 65 0 80 0 | | CHEMICALS, | |
| Florence, white..... | 90 0 100 0 | 90 0 100 0 | | Acid—Acetic, pr lb | 0 4 .. 0 4½ |
| red..... | 85 0 87 6 | 85 0 87 6 | | Citric | 1 7½ .. 1 7½ |
| Bologna, white..... | 115 0 120 0 | 115 0 120 0 | | Nitric | 0 4 .. 0 5 |
| ARIROWROOT, | | | | Oxalic..... | 0 8½ .. 0 83 |
| duty 4d per cwt. | | | | Sulphuric | 0 0½ .. 0 0 |
| Bermuda ..per lb. | 1 0 .. 1 4½ | 0 11.. 1 3 | | Tartaric crystl | 1 7½ .. 1 7½ |
| St. Vincent..... | 0 3 .. 0 7 | 0 2½ .. 0 6 | | powdered. | 1 7½ .. 1 9 .. 0 |
| Jamaica | 0 3 .. 0 4½ | 0 2½ .. 0 4 | | Alum ..per ton. | 135 0 145 0 |
| Other West India. | 0 2½ .. 0 4½ | 0 2 .. 0 3½ | | powder | 0 0 .. 0 |
| Brazil..... | 0 1½ .. 0 2 | 0 1½ .. 0 2 | | Ammonia, Crb. lb. | 0 5½ .. 0 6 |
| East Indi..... | 0 1½ .. 0 2½ | 0 1½ .. 0 2½ | | Sulphate per ton | 270 0 290 0 |
| Natal..... | 0 2½ .. 0 7½ | 0 2½ .. 0 6½ | | Antimony, ore | 200 0 210 0 |
| Sierra Leone..... | 0 2½ .. 0 3 | 0 2½ .. 0 3 | | crude, per cwt | 24 0 .. 28 |
| ASHES ..per cwt. | | | | regulus | 43 0 .. 44 |
| Pot, Canada, 1st sort | 34 6 .. 0 0 | 31 0 .. 0 0 | | French star..... | 43 0 .. 43 |
| Pearl, do, 1st sort. | 34 6 .. 0 0 | 36 0 .. 0 0 | | Arsenic, lump.... | 17 0 .. 18 6 .. 18 0 |

PRICE CURRENT—*continued*

| Chemicals. | | | | | | | | | | | | Drugs. | | | | | | | | | | | | |
|------------------------------|-------|----|-----|-------|-----|----|------|-------|------|----|----|--------|-----------------------|-------------|----|----|----|----|----|----|----|----|----|---|
| | 1862. | | | 1861. | | | | 1862. | | | | 1861. | | | | | | | | | | | | |
| | s. | d. | s. | s. | d. | s. | | s. | d. | s. | d. | | | | | | | | | | | | | |
| Arsenic powder .. | 7 | 6 | .. | 8 | 0 | 8 | 6 | 10 | 6 | 9 | 5 | 10 | 4 | .. | 0 | .. | 0 | .. | 0 | .. | 0 | | | |
| Bleaching Powder .. | 9 | 0 | .10 | 0 | 8 | 0 | 6 | 9 | 6 | .. | 3 | 2 | .. | 4 | 4 | .. | 0 | .. | 0 | .. | 0 | | | |
| Borax, E. I. refund .. | 52 | 6 | .. | 0 | 0 | 0 | 0 | 0 | 0 | .. | .. | .. | .. | 0 | .. | 0 | .. | .. | .. | .. | .. | | | |
| British..... | 50 | 0 | .. | 0 | 0 | 0 | 68 | 6 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Calomel....perl b. | 2 | 9 | .. | 0 | 0 | 0 | 2 | 10 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Camphor, refined .. | 3 | 4 | .. | 4 | 0 | 3 | 1 | 3 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Copras, grn, pr. tn. | 65 | 0 | .. | 0 | 0 | 0 | 65 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Crrsiv. Sublmt. lb. | 1 | 11 | .. | 2 | 0 | 1 | 11 | 2 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Green Enrnl.pr.lb. | 0 | 9 | .. | 0 | 11 | 0 | 9 | 0 | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Brunswk. ewt. | 14 | 0 | .42 | 0 | 14 | 0 | 42 | 0 | 42 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Iodine, dry, pr. oz. | 0 | 51 | .. | 0 | 52 | 0 | 43 | 0 | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Magnesia Crbn, ct. | 42 | 6 | .45 | 0 | 42 | 6 | 45 | 0 | 45 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Calcined, lb. | 1 | 6 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Minium red,pr.ct. | 22 | 6 | .23 | 0 | 22 | 0 | 23 | 0 | 23 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Minium orange, pr.oz. | 33 | 0 | .35 | 0 | 35 | 0 | 35 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Ptsh. Bichromate, lb. | 0 | 74 | .. | 0 | 8 | 0 | 94 | 0 | 92 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Chlorate, | 1 | 2 | 0 | 0 | 1 | 0 | 10 | 0 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Hydriodate oz. | 0 | 54 | .. | 0 | 6 | 0 | 54 | 0 | 54 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Prussiate,lb. | 1 | 0 | .. | 1 | 0 | 1 | 1 | 1 | 1 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| red, | 2 | 1 | .. | 2 | 2 | 2 | 2 | 2 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Precipit. red pr. lb | 2 | 0 | .. | 2 | 10 | 0 | 2 | 9 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| white, | 2 | 0 | .. | 2 | 10 | 0 | 2 | 10 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Prussian Blue, | 1 | 6 | .. | 1 | 10 | 0 | 1 | 6 | 10 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Rose Punk, ...pr.ct. | 29 | 0 | .30 | 0 | 29 | 0 | 30 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Sal-Acetos, ...pr.lb. | 0 | 10 | .. | 0 | 0 | 0 | 10 | 0 | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Ammoniac, ct. | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| British, | 36 | 0 | .38 | 0 | 32 | 0 | 6.33 | 0 | 6.33 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Foreign | 8 | 0 | 8 | 0 | 8 | 0 | 8 | 0 | 8 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Epsom | 5 | 0 | .. | 5 | 6 | 0 | 5 | 6 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Soda, Ash, pr.deg. | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Bicarbonate,ct. | 12 | 6 | 13 | 0 | 12 | 0 | 13 | 0 | 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Crystals per ton | 0 | 0 | .97 | 6 | 95 | 0 | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Sgr. Lead,white, ct. | 37 | 0 | .. | 0 | 0 | 0 | 37 | 0 | 38 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| brown, | 25 | 0 | 0 | 0 | 0 | 0 | 28 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Siphite. Quinine oz | 7 | 6 | .. | 0 | 0 | 0 | 7 | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| British in btl. | 7 | 6 | .. | 0 | 0 | 0 | 7 | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Foreign | 7 | 4 | .. | 7 | 6 | 0 | 6 | 6 | 9 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Sulph. Zinc, cwt. | 14 | 6 | .15 | 0 | 14 | 6 | .15 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Verdigris, ...lb. | 1 | 3 | .. | 1 | 5 | 0 | 1 | 3 | 1 | 5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Vermilion, English | 2 | 8 | .. | 3 | 6 | 0 | 3 | 0 | 3 | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| China | 2 | 3 | .. | 2 | 4 | 2 | 1 | 1 | 2 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| Vtr. blue or Rmn. | 32 | 0 | .33 | 0 | 31 | 0 | 6.32 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | | | |
| COCHINEAL pr. lb. | | | | | | | | | | | | DRUGS. | | | | | | | | | | | | |
| Honduras, black, | 2 | 8 | .. | 4 | 3 | 0 | 2 | 10 | 4 | 8 | .. | .. | Cardamoms,inferior | s. | d. | s. | d. | s. | d. | s. | d. | s. | d. | |
| silver, | 1 | 5 | .. | 3 | 6 | 0 | 2 | 0 | 3 | 6 | .. | .. | Madras. | 5 | 9 | .. | 6 | 9 | .. | 10 | .. | 10 | .. | |
| Mexican, black, | 2 | 7 | .. | 3 | 0 | 0 | 2 | 5 | 3 | 2 | .. | .. | Ceylon. | 3 | 2 | .. | 2 | 6 | 0 | 3 | 4 | .. | 4 | |
| silver, | 2 | 6 | .. | 2 | 7 | 0 | 2 | 3 | 2 | 5 | .. | .. | Cassia,Fistula pr ct. | 0 | 20 | .. | 32 | 0 | 0 | 20 | 0 | 0 | 20 | |
| Lima | 2 | 8 | .. | 3 | 2 | 0 | 2 | 7 | 3 | 4 | .. | .. | Castor,Oil,1stpr,lb. | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 22 | 0 | 0 | |
| Teneriffe, black | 2 | 8 | .. | 3 | 8 | 0 | 2 | 9 | 3 | 2 | .. | .. | second, | 0 | 64 | .. | 64 | 0 | 0 | 54 | .. | 54 | 0 | |
| silver | 2 | 7 | .. | 2 | 9 | 0 | 2 | 7 | 2 | 9 | .. | .. | infr. & dark | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Ambergris, per oz. | 30 | 0 | .35 | 0 | 35 | 0 | 35 | 0 | 38 | 0 | .. | .. | Bombay, in esks | 0 | 54 | .. | 54 | 0 | 0 | 54 | .. | 54 | 0 | |
| Angelica Root, ct. | 20 | 0 | .35 | 0 | 20 | 0 | 35 | 0 | 35 | 0 | .. | .. | Castorum | 0 | 1 | .. | 26 | .. | 0 | 1 | .. | 25 | .. | |
| Aniseed, Chinas, ct. | 76 | 0 | .86 | 0 | 65 | 0 | 75 | 0 | 75 | 0 | .. | .. | Cochlearia,pr.deg. | 10 | 0 | .. | 15 | 0 | 0 | 15 | 0 | 0 | 15 | |
| German, ct. | 19 | 0 | .38 | 0 | 22 | 0 | 42 | 0 | 42 | 0 | .. | .. | Cocculus,inf. | 12 | 0 | .. | 10 | 0 | 0 | 10 | 0 | 0 | 10 | |
| Inferior | 20 | 0 | .36 | 0 | 20 | 0 | 33 | 0 | 33 | 0 | .. | .. | Cocculus,med. | 12 | 0 | .. | 10 | 0 | 0 | 10 | 0 | 0 | 10 | |
| Barbadoes | 60 | 0 | 420 | 0 | 60 | 0 | 420 | 0 | 0 | .. | .. | .. | Cocculus,med. | 12 | 0 | .. | 10 | 0 | 0 | 10 | 0 | 0 | 10 | |
| Ambergris, per oz. | 30 | 0 | .35 | 0 | 35 | 0 | 35 | 0 | 38 | 0 | .. | .. | Cocculus,med. | 12 | 0 | .. | 10 | 0 | 0 | 10 | 0 | 0 | 10 | |
| Calisaya, flat | 4 | 3 | .. | 4 | 6 | 0 | 3 | 6 | 3 | 9 | .. | .. | Cocculus,med. | 12 | 0 | .. | 10 | 0 | 0 | 10 | 0 | 0 | 10 | |
| quill | 3 | 9 | .. | 4 | 2 | 3 | 3 | 4 | 3 | 6 | .. | .. | Cocculus,med. | 12 | 0 | .. | 10 | 0 | 0 | 10 | 0 | 0 | 10 | |
| Carthagenae | 1 | 3 | .. | 2 | 6 | 0 | 10 | 2 | 0 | 2 | 0 | .. | .. | Timevellye. | 0 | 4 | .. | 1 | 6 | 0 | 0 | 2 | 0 | 0 |
| Pitayo | 1 | 10 | .. | 2 | 9 | 0 | 1 | 6 | 2 | 2 | .. | .. | Alexandria. | 0 | 3 | 0 | 6 | 0 | 0 | 4 | 0 | 0 | 4 | |
| Red | 2 | 6 | .. | 6 | 6 | 0 | 2 | 6 | 0 | 0 | .. | .. | Snake Root. | 2 | 3 | 0 | 0 | 1 | 0 | 1 | 8 | 1 | 9 | |
| Bay Berries, pr.ct. | 23 | 0 | .40 | 0 | 22 | 0 | 40 | 0 | 40 | 0 | .. | .. | Sperm,aceti,refined | 1 | 0 | .. | 1 | 2 | 0 | 1 | 1 | 1 | 1 | |
| Bucca Leaves, lb. | 0 | 3 | .. | 1 | 6 | 0 | 3 | 1 | 6 | 0 | .. | .. | Squalls | 0 | 1 | .. | 2 | 0 | 0 | 1 | 0 | 0 | 0 | |
| Camomile Flowers | 40 | 0 | .95 | 0 | 40 | 0 | 90 | 0 | 90 | 0 | .. | .. | Tamarinds, E. Ind. | 10 | 0 | .. | 12 | 0 | 0 | 9 | 0 | 0 | 12 | |
| Cambor, China | 330 | 0 | 0 | 0 | 220 | 0 | 230 | 0 | 0 | .. | .. | .. | W.L per cwt. | 15 | 0 | .. | 10 | 0 | 0 | 16 | 0 | 0 | 12 | |
| Canella Alba | 19 | 0 | .40 | 0 | 19 | 0 | 40 | 0 | 40 | 0 | .. | .. | Valerian Root, Eng. | 20 | 0 | .. | 40 | 0 | 0 | 20 | 0 | 0 | 40 | |
| Cantharides, pr.lb. | 2 | 10 | .. | 3 | 0 | 2 | 1 | 2 | 2 | 0 | .. | .. | Terra Japonica— | 26 | 0 | .. | 27 | 0 | 0 | 17 | 0 | 0 | 18 | |
| Cardamoms,Milbar, good | 7 | 0 | .. | 7 | 3 | 4 | 6 | .. | 5 | 1 | .. | .. | Gambier, cwt | 26 | 0 | .. | 27 | 0 | 0 | 17 | 0 | 0 | 18 | |
| Cutech, cwt | 7 | 0 | .. | 27 | 0 | 27 | 0 | 29 | 0 | 21 | 0 | .. | Cutech, cwt | 27 | 0 | .. | 29 | 0 | 21 | 0 | .. | 23 | 0 | |

PRICE CURRENT—*continued.*

| | PRINCIPAL CURRENTS OF TRADE | | | | | | | s. d. s. d. s. d. | | | s. d. s. d. | |
|------------------------|-----------------------------|-------|-------|-------|---------|-----------|--------------------------|-------------------|------|------|-------------|-----------|
| | 1862. | | | 1861. | | | OILS. | s. d. s. d. s. d. | | | s. d. s. d. | |
| DRUGS. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | Citronel. | 0 51 | 0 53 | 0 4 | 0 0 | |
| Vanilla, Mexican lb | 25 | 0 | .55 | 0 | 20 | .45 | Clove. | 0 4 | 0 0 | 0 4 | 0 0 | |
| Wormwood, pr cwt. | 2 | 0 | 0 | 0 | 2 | 0 | Croton. | 0 3 | 0 4 | 0 3 | 0 4 | |
| GUM. per cwt. | | | | | | | Juniper.....per lb. | 1 10 | 4 0 | 1 10 | 4 0 | |
| Ammoniac, drop. | 100 | 0 | 125 | 0 | 70 | 105 | Lavender..... | 2 6 | 5 0 | 2 6 | 5 0 | |
| lump | 15 | 0 | .65 | 0 | 15 | .40 | Lemon..... | 4 0 | 8 6 | 5 0 | 10 6 | |
| Anini, fine palo. | 300 | 0 | 320 | 0 | 290 | .310 | Lemongrass, pr oz. | 0 4½ | 0 6 | 0 5 | 0 0 | |
| bold amber. | 200 | 0 | 250 | 0 | 260 | .270 | Mace, ex. | 0 1½ | 0 2 | 0 1½ | 0 2 | |
| medium.... | 170 | 0 | 200 | 0 | 170 | .230 | Neroli..... | 6 0 | 9 0 | 6 0 | 9 0 | |
| small & dark 100 | 0 | 125 | 0 | 100 | 0 | .160 | Nutmeg..... | 0 1½ | 0 2½ | 0 1½ | 0 2½ | |
| ordinary dark 40 | 0 | .80 | 0 | 50 | 0 | .100 | Orange.....per lb. | 5 0 | 6 6 | 6 0 | 7 0 | |
| Arab. E.I.F palepink | 50 | 0 | .55 | 0 | 43 | .52 | Otto Roses, per oz. | 15 0 | .24 | 0 | 16 0 | .25 0 |
| unsweet, good to f | 32 | 0 | .45 | 0 | 36 | .44 | Peppermint, pr lb. | | | | | |
| red and mixed 20 | 0 | .30 | 0 | 28 | 0 | .34 | American..... | 8 6 | .14 | 0 | 7 6 | .13 0 |
| siftings..... | 0 | 0 | 0 | 18 | 0 | .23 | English..... | 33 0 | .34 | 0 | 33 0 | .38 0 |
| Turkey, pkd. gato f. | 115 | 0 | 180 | 0 | 110 | .150 | Rhodium.....per oz. | 3 9 | 6 0 | 3 9 | 6 0 | |
| second & infr. | 40 | 0 | 110 | 0 | 42 | .105 | Rosemary.....per lb. | 1 10 | 3 0 | 1 10 | 3 0 | |
| in sorts..... | 30 | 0 | .40 | 0 | 30 | .43 | Sassafras..... | 3 0 | 3 6 | 3 6 | 4 6 | |
| Gedda..... | 26 | 0 | .28 | 0 | 24 | .25 | Spearmint..... | 5 0 | 10 0 | 5 0 | .12 6 | |
| Barbary, white | 36 | 0 | .40 | 0 | 30 | .32 | Spiken..... | 1 3 | 1 6 | 1 3 | .1 6 | |
| brown..... | 30 | 0 | .33 | 0 | 26 | .27 | Thyme..... | 1 9 | 2 3 | 1 9 | .2 9 | |
| Australian..... | 23 | 0 | .25 | 0 | 16 | .18 | PITCH, British, pr cwt. | 12 0 | 0 | 0 | 7 0 | 0 0 |
| Assafet. fr. to gd. | 30 | 0 | 110 | 0 | 16 | .95 | Swedish..... | 0 0 | 0 | 0 | 10 6 | .0 0 |
| Benjamin, 1st, qual. | 400 | 0 | 580 | 0 | 360 | .660 | SALT PETRE, pr cwt. | | | | | |
| 2nd qual. 230 | 0 | 400 | 0 | 160 | 0 | .330 | Engl. 6 p.c. or under | 40 0 | .41 | 0 | 33 6 | .34 0 |
| 3rd | 50 | 0 | 190 | 0 | 60 | .150 | over 6 per cent | 38 6 | .39 | 6 | 31 0 | .33 0 |
| Copal, Angola red. | 100 | 0 | 110 | 0 | 100 | .105 | Madras..... | 35 0 | .37 | 6 | 31 0 | .31 0 |
| pale..... | 97 | 6 | 105 | 0 | 85 | .105 | Bombay..... | 35 0 | .37 | 6 | 30 0 | .33 0 |
| Benguela..... | 110 | 0 | 130 | 0 | 85 | .120 | British-refined..... | 43 0 | .44 | 0 | 36 0 | .37 6 |
| Sierra Lue lb | 0 | 10 | 0 | 10 | 0 | 7.. 1 8 | Nitrate of Soda | 13 0 | .14 | 6 | 13 0 | .14 0 |
| Manilla pret | 20 | 0 | .43 | 0 | 12 | .40 | SEED, Canary, pr qr. | 36 0 | .54 | 0 | 30 0 | .48 0 |
| Dammar pl. pr ct | 0 | .50 | 0 | 36 | 0 | .49 | Caraway, Eng. p. c. | 0 0 | 0 | 0 | 23 0 | .25 0 |
| Galbanum, pl. drop | 100 | 0 | 120 | 0 | 120 | .100 | German, &c. | 0 0 | 0 | 0 | 0 0 | 0 0 |
| Gimbge. pkd. pipe | 140 | 0 | 180 | 0 | 120 | .150 | Coriander..... | 0 0 | 0 | 0 | 0 0 | 0 0 |
| In sorts..... | 80 | 0 | 120 | 0 | 80 | .110 | East India..... | 0 0 | 0 | 0 | 0 0 | 0 0 |
| Guaiacum ..pr. lb. | 6 | 6 | 1 6 | 0 | 7.. 1 6 | Hemp..... | 0 0 | 0 | 0 | 48 0 | .52 0 | |
| Kino per cwt. | 220 | 0 | 240 | 0 | 100 | .140 | Linseed, Black Sea | 62 0 | .64 | 52 | 50 0 | .50 0 |
| Kowrie..... | 22 | 0 | .24 | 0 | 16 | .18 | Calcutta, fine | 66 0 | .63 | 50 | 58 0 | .58 0 |
| Mstic. pkd. pr lb. | 5 | 0 | .5 | 6 | 6 | .7 6 | Bombay..... | 70 0 | .72 | 0 | 59 0 | .60 0 |
| Myrrh gd & fr pr ct | 160 | 0 | 200 | 0 | 140 | .189 | Egyptian..... | 60 0 | .62 | 0 | 56 0 | .58 0 |
| sorts..... | 70 | 0 | 150 | 0 | 70 | .189 | Mustard, brn, p. bhl | 0 0 | 0 | 0 | 9 0 | .14 0 |
| Olibanum, pl. drop | 65 | 0 | .67 | 6 | 56 | .066 | white..... | 7 6 | .9 | 0 | 9 0 | .10 0 |
| ambr & yel. | 45 | 0 | .64 | 0 | 40 | .055 | Poppy, E.I. per qr. | 59 0 | .60 | 0 | 58 0 | .60 0 |
| mixed. & dk. | 10 | 0 | .39 | 0 | 12 | .25 | Rape, English..... | 0 0 | 0 | 0 | 0 0 | 0 0 |
| Senegal..... | 38 | 0 | .40 | 0 | 42 | .045 | Danube..... | 74 0 | .75 | 0 | 65 0 | 0 0 |
| Sandrac..... | 75 | 7 | 107 | 6 | 75 | .100 | Calcutta, fine | 67 0 | .68 | 6 | 60 0 | .61 0 |
| Tragacanth, leaf. | 180 | 0 | 340 | 0 | 187 | .0 330 | Bombay..... | 74 0 | .75 | 0 | 68 0 | .70 0 |
| In sorts. | 100 | 0 | 130 | 0 | 100 | .130 | Teel, Sesame or Gingy | 66 0 | .73 | 0 | 62 0 | .68 0 |
| OILS. per tun. | £ s. s. £ s. £ s. £ s. £ s. | | | | | | Cotton.....per ton | 180 | 0 | 185 | 0 | 150 0 |
| Seal..... | 43 | 0 | .47 | 10 | 33 | .0 40 | Gud. Nut Kralns, tn | 350 | 0 | 360 | 0 | 320 0 |
| Sperm, body..... | 84 | 0 | 0 | 0 | 92 | .0 92 | SOAP, Lnd, yel pr ct. | 20 | 0 | .38 | 0 | 21 0 |
| Cod..... | 44 10 | 0 | .45 | 0 | 34 | 0 | mottled..... | 31 0 | 0 | .36 | 0 | 31 0 |
| Whale, Greenland. | 0 | 0 | 0 | 0 | 0 | 0 | curd..... | 50 0 | 0 | 0 | 50 0 | 0 0 |
| Stth Sca pale | 40 | 0 | .42 | 0 | 32 | .0 35 | Castile..... | 33 0 | 0 | .40 | 0 | 37 0 |
| E. I. Fish. | 37 10 | 0 | .33 | 0 | 30 | .10 32 | Marsiles..... | 40 0 | 0 | .41 | 0 | 40 4 1 |
| Olive, Galipoli, ton. | 61 | 10 | .62 | 0 | 60 | .61 | SOY, China, per gal. | 2 6 | 2 | 7 | 2 1 | 2 3 |
| Florence, & chst. | 1 | 0 | 1 | 2 | 0 | 19 20 | Japan..... | 0 10 | 1 | 0 | 0 8 | 0 10 |
| Cocoant. Cochin, tn | 57 | 6 | .58 | 0 | 50 | .0 51 | SPONGE, Turk, F.pkd | 20 0 | 0 | .24 | 0 | 20 0 26 |
| Ceylon..... | 54 | 6 | .55 | 0 | 48 | .6 50 | fair to good..... | 8 0 | 0 | .18 | 0 | 9 0 18 |
| Sydney..... | 46 | 0 | .54 | 0 | 42 | .0 47 | ordinary..... | 3 0 | 0 | 6 | 0 | 3 0 8 0 |
| Ground Nut & Gin. | | | | | | | Bahama | 0 4 | 1 | 3 | 0 | 3 0 1 0 |
| Bombay..... | 48 | 10 | .50 | 0 | 41 | .0 42 | TURPENTINE. | | | | | |
| Madras..... | 49 | 0 | .50 | 0 | 43 | .0 44 | Rough, per cwt. | 0 0 | 0 | 0 | 0 | 18 0 0 |
| Palm, fine..... | 42 | 10 | .43 | 0 | 48 | 10 0 | Spirits, English | 0 0 | 0 | 0 | 62 0 | 0 0 |
| Linsced..... | 42 | 0 | .42 | 6 | 34 | .0 0 | American, Inecks 180 | 0 | 0 | 0 | 63 0 | 0 0 |
| Rapeseed, Engl. pale | 50 | 6 | .51 | 0 | 46 | 0 | WAX, Bees, English | 172 0 | 0 | 175 | 0 | 165 0 |
| brown..... | 48 | 0 | 0 | 0 | 43 | 0 | German..... | 160 | 0 | 180 | 0 | 165 0 |
| Foreign do. | 51 | 0 | .53 | 0 | 47 | 0 | American..... | 165 | 0 | 175 | 0 | 200 0 |
| brown..... | 48 | 0 | .43 | 6 | 43 | 0 | white fine..... | 0 0 | 0 | 0 | 200 | 2 15 0 |
| Lard..... | 49 | 0 | .50 | 0 | 54 | 0 | Jamaica..... | 170 | 0 | 180 | 0 | 190 0 |
| Tallow..... | 40 | 0 | .41 | 0 | 40 | 0 | Gambia..... | 170 | 0 | 175 | 0 | 180 0 |
| Rock Crude..... | 16 | 6 | .17 | 0 | 0 | 0 | Mogadore..... | 125 | 0 | 160 | 0 | 150 0 |
| Oils, Essential— | s. d. | s. d. | s. d. | s. d. | s. d. | | East India..... | 140 | 0 | 170 | 0 | 170 0 |
| Almond esscn, lb. | 19 | 0 | 0 | 0 | 19 | 0 | ditto, bleached..... | 160 | 0 | 200 | 0 | 220 0 |
| expressed..... | 0 | 0 | 0 | 0 | 1 | 0 | vegetable, Japan..... | 65 | 0 | .82 | 0 | 53 0 |
| Aniseed..... | 5 | 9 | 0 | 0 | 6 | 4 6 6 | WOOD, Dye, per ton, | | | | | |
| Baypr cwt. | 110 | 0 | 120 | 0 | 122 | 6 0 0 | Fustic, Cuba | 140 | 0 | 150 | 0 | 160 0 |
| Bergamott, pr lb. | 5 | 6 | .12 | 0 | 6 | 6 14 0 | Jamaica..... | 110 | 0 | 125 | 0 | 115 0 |
| Cajeputa, bond, oz. | 0 | 2½ | 0 | 3 | 0 | 1½ 0 1½ 2 | Savannilla..... | 100 | 0 | 0 | 100 | 0 100 |
| Caraway.....pr lb. | 4 | 3 | .6 | 0 | 4 | 3 6 0 | Zante..... | 0 | 0 | 0 | 140 | 0 180 |
| Cassia..... | 9 | 5 | .9 | 6 | 10 | 0 10 6 | Logwood, Mpemby | 190 | 0 | 200 | 0 | 180 0 |
| Cinnamon (in b), oz. | 1 | 6 | .4 | 0 | 1 | 0 3 10 | Honduras..... | 145 | 0 | 150 | 0 | 120 0 |
| Cinnamon Leaf... | 0 | 3 | 0 | 4 | 0 | 2 0 4 | St. Domingo. | 115 | 0 | 120 | 0 | 115 0 |
| | | | | | | | Jamaica..... | 105 | 0 | 110 | 0 | 105 0 110 |



662. G. DAVIES. *Improvements in attaching artificial teeth to plates and to each other, and in moulds for forming artificial teeth.* (A communication.) Dated March 11, 1862.

The first part of this invention consists in securing artificial teeth to metal plates, by interposing between the said teeth, by plates, a strip or mass of gum or india-rubber, and vulcanizing or hardening the same, after the teeth have been adjusted to the plate; also in forming dove-tailed recesses in artificial teeth, for the purpose of securely attaching the teeth to the plate and to each other by vulcanizable gum, or any other suitable cement; also in the use of staples embedded in artificial teeth as a means of securing the latter to vulcanizable gum plates in the manner described. The second part of the invention consists in making moulds for forming artificial teeth, substantially as described, so that depressions of any size or shape may be formed in the bases of the teeth. In attaching teeth to a metal plate by means of vulcanizable gum, a plate of the desired form is first prepared by any of the known processes, and at the point where the teeth have to be secured, a metal rib is soldered or otherwise

secured to the plate. This rib may be plain, but it is preferable to make it thicker on the outer edge than it is at the point where it is secured to the plate, or the rib may be perforated or serrated. In the teeth, or block of teeth, as the case may be, is formed a groove or recess, to coincide with the rib or projection of the plate, the groove being somewhat larger than the rib, and dove-tailed, as explained hereafter. A strip or sheet of vulcanizable gum is placed over the rib of the plate, care being taken to keep both the teeth and plate warm. The teeth are now applied to the plate and pressed tightly against the same, so that the rib of the plate may penetrate the groove of the teeth, carrying with it a sufficient quantity of gum to make a tight joint, and to fill up all irregularities or interstices. The whole is then placed in a mixture of plaster of Paris and whiting, and the gum subjected to a vulcanizing or hardening process, when the block of teeth will be found to adhere with the required tenacity to the plate, the interstices in the block and between the block and plate being filled with the vulcanized gum, and the joint presenting a smooth and uniform appearance.—*Patent completed.*

PURITY OF FROZEN WATER.—M. Robinet has made a variety of experiments to ascertain how far water is freed from saline impurities by congelation: and his results go to show that the small amount of lime and magnesian salts in potable waters is forced out in the act of freezing as completely as the more soluble salts present in sea-water. Frozen water, he says, is so far purified that it may, in most cases, be used for chemical purposes in place of distilled water. In reference to this, M. Martens adds, that in his photographic excursions among the Alps he found that he could always use the water from the glaciers instead of distilled water, but that dissolved snow did not answer. Dr. Rüdorff has also made experiments on the freezing of saline solutions. He employed the platino-cyanide of magnesium, the solution of which is colourless; but he found that when the solution was frozen so far that the water left was not enough to hold the salt dissolved, crystals of the well-known beautiful appearance were formed. Other curious results were observed with a super-saturated solution of sulphate of soda. When such a solution was cooled below the freezing point, and the formation of ice prevented, it was found that a piece of ice dropped in determined the formation of ice, while a crystal of the salt caused the formation of crystals of the salt. A very small piece of the salt dropped in with ice caused the separation of the whole of the salt. He noticed, too, that the lowering of the temperature produced an alteration in the constitution of the solution. For instance, when a solution of the blue salt, $CuCl + 12HO$, was frozen, the unfrozen water contained the green salt, $CuCl + 4HO$. Other curious results will be found in the paper referred to.—*Chemical News.*

RUSSIAN METHOD FOR THE PRESERVATION OF FRUITS, VEGETABLES, &c.—At the last exhibition at St. Petersburg, the following mode of preserving fruits, invented by the maître d'hôtel of the Grand Duke Nicholas, attracted great attention from amateurs. Quick-lime is slackened in water, into which four or five drops of creosote for each quart of water have been mixed; the lime must be neither too much nor too little slackened; there is a certain knack which practice alone can teach. Take a box and lay in its bottom a bed of the slackened lime; above this spread a layer of the materials to be preserved; at the four angles and elsewhere lay packages of powdered charcoal; then make another bed of the lime, followed by another layer of the fruit. When the box is full put on the lid, and close it air-tight. Thus preserved, the fruits will last a whole year.—*Amer. Journ. Pharm.*